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OIL AND GAS CONSERVATION COMMISSION

OF THE STATE OF MONTANA

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ANNUAL REVIEW FOR THE YEAR 1965

Relating To

OIL AND GAS

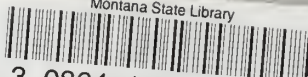
Volume 9

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Annual Review for the Year 1965

Volume 9

INTRODUCTION

This is the ninth Annual Review of drilling and producing operations in Montana.

Production during 1965 reached an all time high of 32,778,000 barrels as compared to the previous high of 31,647,000 barrels in 1962. Total remaining oil reserves at the end of 1965 are estimated to be 408 million barrels, the same figure as a year ago.

Development during 1965 of major discoveries made in 1964 has generally confirmed last year's reserve estimates, although some revisions were made. There were some spectacular discoveries during 1965, but they were in smaller reservoirs.

During 1965 a record total of 507 wells were drilled in Montana. There were 214 wildcat wells drilled, and these resulted in 14 oil wells, 1 gas well, and 199 dry holes. Development drilling resulted in 177 oil wells, 9 gas wells, and 107 dry holes. There were 15 discoveries for a wildcat dry hole ratio of 13.3 to 1.

New fields found during 1965 include the Moulton Pool and some smaller Moulton discoveries in the northern part of the Cut Bank Field. Other new fields found were the Ranch Creek Field in southeastern Montana, and the Fairview Field in eastern Montana. New pays were found in existing fields.

Development drilling continued steadily during 1965 in the Flat Lake, Goose Lake, and Weldon Fields in northeast and east-central Montana. Drilling in the Cut Bank-Shelby area was at a strong pace. Several prolific wells were drilled in this area both as field stepouts and discoveries.

Six waterfloods were started during 1965. The Oil and Gas Commission approved 6 waterfloods and 3 have commenced water injection during the year. Four of the 5 major Cut Bank Sand waterfloods have shown good response. Large projects in the Cedar Creek Anticline and the Montana portion of Elk Basin are producing secondary oil. Secondary production during the latter part of 1965 amounted to approximately 19,000 barrels per day or 21% of total Montana production.



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FIVE YEAR SUMMARY

	1961	1962	1963	1964	1965
Production, Northern Montana—Bbbs.	4,211,017	4,252,304	4,530,510	5,705,948	6,826,261
South Central—Bbbs.	2,895,587	3,851,672	3,383,587	3,699,927	3,597,647
Central—Bbbs.	6,367,524	5,279,163	3,950,490	3,269,768	2,849,923
Williston Basin—Bbbs.	17,431,916	18,264,368	19,005,066	17,971,855	19,504,287
TOTAL	30,906,044	31,647,507	30,869,653	30,647,498	32,778,118
No. of Producing Wells, Northern Montana	2,447	2,615	2,550	2,216	2,649
South Central	81	88	82	88	101
Central	324	333	310	317	306
Williston Basin	535	656	700	708	754
TOTAL	3,387	3,692	3,642	3,329	3,810
Average Daily Production/Well—BOPD,					
Northern Montana	4.7	4.5	4.9	7.4	7.1
South Central	97.9	119.9	113.4	115.1	97.6
Central	53.8	43.4	34.8	28.8	25.5
Williston Basin	89.3	76.3	74.4	65.7	70.9
STATE AVERAGE	25.0	23.5	23.2	25.2	23.6
Development Wells Drilled, Oil Wells	169	182	131	100	177
Gas Wells	6	16	6	7	9
Dry Holes	60	57	60	109	107
TOTAL	235	255	197	216	293
Exploratory Wells Drilled, Oil Wells	7	8	8	22	14
Gas Wells	2	2	5	3	1
Dry Holes	173	154	152	150	199
TOTAL	182	164	165	175	214
TOTAL WELLS DRILLED	417	419	362	391	507
TOTAL FOOTAGE DRILLED	2,209,803	2,415,856	1,906,976	1,863,155	2,328,865
AVERAGE DEPTH ALL WELLS	5,299	5,765	5,268	4,765	4,593

OIL AND GAS DISCOVERIES IN 1965

County	Field	Operator — Well Name and Location	Total Depth Ft.	Producing Formation	Initial Production Oil B/D	Gas (MCF)
Carbon	Unnamed	L. Barker (Sharples) Vickers 1, NE NW 36-6S-20E	7,633	2nd Frontier	116 (P)	---
Glacier	Cut Bank	Arrowhead-Casey-Kuhleman, Johnson 1, SW NW 26-37N-5W	2,883	Moulton*	131 (F)	---
Glacier	East Blackfoot	Dunoco, Inc., Lozing 1, NW NW NE 7-37N-5W	3,464	Cut Bank	35 (P)	---
Liberty	Grandview	Montalban Oils, Blair 1, NW SE 3-34N-4E	2,700	Swift	66 (P)	---
McCone	Prarie Elk	States Oil, Govt. 1, NE SE 34-24N-46E	8,961	Charles	132 (F)	---
Musselshell	Ivanhoe	Arthur Thayer, Thomson 1, SW SE 7-11N-31E	2,715	2nd Cat Creek	90 (P)	---
Powder River	Ranch Creek	Baumgartner Oil, Powell-USA 1, SE NW 15-9S-53E	5,000	Muddy	118 (P)	---
Richland	Fairview	Southern Union Production, Hunter 1, SW SW 24-25N-58E	12,836	Red River	815 (F)	500
Roosevelt	Mineral Bench	Tenneco Oil Company, Nesbit 1, NW NE NE 4-31N-51E	9,676	Charles	237 (P)	---
Roosevelt	Volt	Murphy Corp., Trimble 1, NE NE 8-30N-46E	7,437	Duperow	214 (F)	---
Roosevelt	Unnamed	Murphy Corp., Tribal-Brookman 1, SE NW 25-31N-48E	8,245	Charles*	10 (P)	---
Sheridan	Unnamed	Clarence Onstad, Kylo 1, SE NW 18-35N-56E	7,327	Charles	24 (P)	---
Toole	Cut Bank	Eager Oil, Parker 1, SW SW NW 3-37N-4W	2,621	Charles	42 (P)	---
Toole	Cut Bank	Chas. W. Austin, State 1, NW NW SE 17-37N-4W	2,805	Moulton*	432 (F)	---
Toole	Arch Apex	A. A. Oil Corp., Parsell 11, NW NW 9-36N-3E	3,081	Moulton*	408 (F)	---
				Swift*	---	5000

*New Pool Discovery (F)—Flowing (P)—Pumping

SUMMARY OF DRILLING BY COUNTIES—1965
STATE OF MONTANA

COUNTY	WILDCATS			DEVELOPMENT			TOTAL WELLS DRILLED	FOOTAGE DRILLED	AVG. DEPTH PER WELL
	Dry	Oil	Gas	Dry	Oil	Gas			
Big Horn	5	---	--	1	2	--	8	49,431	6,178
Blaine	2	---	--	---	---	--	2	5,587	2,793
Carbon	7	1	--	1	7	--	16	75,597	4,725
Carter	8	---	--	---	---	--	8	37,325	4,666
Chouteau	1	---	--	---	---	--	1	1,738	1,738
Custer	10	---	--	---	---	--	10	59,057	5,906
Daniels	1	---	--	---	---	--	1	8,384	8,384
Dawson	1	---	--	2	2	--	5	49,735	9,947
Fallon	1	---	--	1	8	--	10	88,905	8,891
Fergus	---	---	--	---	---	--	---	---	---
Garfield	5	---	--	---	---	--	5	28,877	5,775
Glacier	4	2	--	14	19	--	39	124,671	3,197
Golden Valley	3	---	--	---	---	--	3	9,384	3,128
Hill	2	---	--	---	---	--	2	7,206	3,603
Judith Basin	---	---	--	---	---	--	---	---	---
Liberty	18	1	--	9	13	1	42	126,172	3,004
McCone	25	1	--	8	14	--	48	329,188	6,858
Musselshell	3	1	--	17	4	--	25	113,075	4,523
Park	---	---	--	---	---	--	---	---	---
Petroleum	5	---	--	---	---	--	5	11,141	2,228
Phillips	1	---	--	---	---	--	1	4,161	4,161
Pondera	12	---	--	3	14	--	29	86,784	2,993
Powder River	14	1	--	---	2	--	17	100,069	5,886
Prarie	1	---	--	---	1	--	2	14,759	7,380
Richland	---	1	--	---	---	--	1	12,836	12,836
Roosevelt	7	3	--	12	3	--	25	194,793	7,792
Rosebud	5	---	--	2	1	--	8	41,243	5,155
Sheridan	5	1	--	9	38	--	53	363,054	6,850
Stillwater	3	---	--	2	---	1	6	16,491	2,749
Teton	2	---	--	---	1	--	3	9,315	3,105
Toole	43	2	1	24	47	7	124	303,294	2,446
Valley	2	---	--	---	---	--	2	13,220	6,610
Wheatland	---	---	--	---	---	--	---	---	---
Wibaux	1	---	--	2	1	--	4	36,851	9,213
Yellowstone	2	---	--	---	---	--	2	6,622	3,311
TOTALS	199	14	1	107	177	9	507	2,328,865	4,593

MONTANA
GAS PRODUCTION DATA—1965

Field	County	Producing Formation	1965 Production MCF
Big Coulee	Golden Valley & Stillwater	Lakota & Morrison	1,018,013
Bowdoin	Phillips & Valley	Colorado	2,189,154
Bowes	Blaine	Eagle	691,919
Cabin Creek	Fallon	Interlake & Red River	1,015,442
Cedar Creek	Fallon & Wibaux	Judith River & Eagle	3,207,000
Cut Bank & Reagan	Glacier & Toole	Cut Bank & Madison	8,292,024
Devon	Toole	Blackleaf	26,834
Dry Creek	Carbon	Eagle & Frontier	1,562,172
Elk Basin	Carbon	Tensleep	304,681
Flat Coulee	Liberty	Blackleaf & Swift	24,311
Gold Butte	Toole	Swift	42,034
Grandview	Liberty	Blackleaf & Kootenai	70,910
Hardin	Big Horn	Frontier	40,102
Keith Block	Liberty	Blackleaf & Sawtooth	3,448,698
Kevin Sunburst	Toole	Kootenai	937,296
Lake Basin	Stillwater	Frontier	197,045
Middle Butte	Toole	Blackleaf	62,107
Mt. Lilly	Liberty	Madison	286,603
Pine	Dawson, Prarie, Fallon & Wibaux	Interlake & Red River	736,066
Plevna	Fallon	Judith River	171,963
Utopia	Liberty	Blackleaf, Kootenai & Ellis	969,857
Whitlash	Liberty	Blackleaf & Kootenai	1,523,290
Miscellaneous			508,035
TOTAL ALL FIELDS			27,325,556

REFINING

	Year, 1965 Total Bbls.
Big West Oil Company	1,034,320
Continental Oil Company	10,358,542
Diamond Asphalt Company	110,897
Farmers Union Central Exchange, Inc.	6,300,280
Humble Oil & Refining Company	11,989,587
Jet Fuel Refinery	81,265
Phillips Petroleum Company	1,500,318
Tesoro Petroleum Company	508,135
Union Oil Company	1,157,542
TOTAL Bbls. Oil Refined in Montana (1965)	33,040,886

SUMMARY OF ACTIVE SECONDARY RECOVERY PROJECTS (DATE EFFECTIVE TO JANUARY 1, 1966)

Field, Formation	Operator	Type of Project	Injection Pattern	Date Injections Commenced	Cumulative Injections 1000's Bbls. or MCF	Dec. 1965 Avg. Daily Injection Rate	Est. Drig. Reserves 1000's Bbls.	No. of Injection Wells	Source of Injection Media & Remarks
Ash Creek, Shannon	McDermott	Waterflood	Periphal	10-15-64	177	502	158	3	Parkman, Data for Montana portion.
Bowes, Sawtooth	Texaco, Inc.	"	Dispersed Pilot	5-23-61	900	1,012	1,708	5	Madison
Cabin Creek, Siluro-Ordovician	Shell Oil	"	Modified Periphal	6-12-59	8,006	15,476	17,931	11	Prod. Water & Fox Hills
Cat Creek, 1st & 2nd CC (Unit 1)	Continental Oil	"	Periphal	10-10-62	3,094	3,937	8,351	7	Third Cat Creek
Cat Creek, 1st & 2nd CC (Unit 2)	Continental Oil	"	Periphal	12-1-59	12,496	4,963		11	Third Cat Creek
Cut Bank, NE Unit, Cut Bank	Texaco, Inc.	"	5-Spot	9-2-63	1,997	4,955	9,125	34	Madison
Cut Bank, NW Unit, Cut Bank	Humble Oil	"	5-Spot	1-30-62	3,252	5,445	5,700	31	Madison
Cut Bank, So. Central, Cut Bank	Union Oil	"	5-Spot	5-63	5,993	4,082	12,440	25	Madison
Cut Bank, SE Unit, Cut Bank	Texaco, Inc.	"	5-Spot	4-62	6,814	7,246	5,675	48	Madison
Cut Bank, SW Unit, Cut Bank	Phillips Petr.	"	5-Spot	9-62	3,248	2,732	21,000	11	Madison
Cut Bank, Tribal, Lander	Humble Oil	"	Dispersed	6-51	3,992	612	500	4	Eagle
Cut Bank, H. C. Lander, Lander	Humble Oil	"	Dispersed	4-65	133	344	--	2	Eagle
Cut Bank, Lander Sand, Lander	Texaco, Inc.	"	Dispersed	7-64	504	1,260	1,300	7	Eagle
Cut Bank, McGuiness-Houlton	Union Oil	"	Dispersed	12-62	781	974	500	2	Madison
Cut Bank, SW Ext., Cut Bank	Continental Oil	"	One Well Pilot	12-63	221	200	--	1	Madison
Elk Basin, Frontier	Pan American	Gas Inj.	Cresal	1926	All injection wells in Wyoming		1,376		Purchased Gas
Elk Basin, Embarr-Tensleep	Pan American	Gas Inj.	Cresal	1949	All injection wells in Wyoming		61,465		Inert Gas
Elk Basin, Madison	Pan American	Waterflood	Periphal	1962	11,873	295	6,235	4	Madison
Elk Basin, NW Unit, Frontier	Sinclair Oil	"	Periphal	10-57	2,906	1,649	484	4	Madison
Ivanhoe, Tyler	Ivanhoe Petr.	"	Dispersed Pilot	7-64	113	282	2,997	1	Alluvial Sands
Kevin-Sunburst, Madison	Imperial-Craig	"	Dispersed	--	1,037	170	--	3	Madison
Kevin-Sunburst, Madison	Lon Crumley	"	Dispersed	9-63	158	241	--	1	Madison
Kevin-Sunburst, Madison	Texaco, Inc.	"	Periphal	8-64	891	1,369	--	7	Madison
Kevin-Sunburst, Madison	Juniper Oil	"	Dispersed	8-64	72	154	--	1	Madison
Kevin-Sunburst, Madison	Cardinal Petr.	"	Dispersed	6-65	41	215	--	1	Madison
Little Beaver East, Siluro-Ord.	Shell Oil	"	Semi-Periphal	4-65	336	2,451	1,936	5	Minnelusa
Mosby Bone, Morrison	Husselshell Oil	"	One Well Pilot	12-65		95	--	1	Third Cat Creek
Pine, Siluro-Ordovician	Shell Oil	"	Semi-Periphal	3-59	22,388	21,154	27,796	29	Fox Hills & Prod. Water
Pondora, Madison	Phillips Petr.	"	Dispersed	8-61	641	327	--	2	Madison
Reagan, Madison	Union	Gas, Inj.	Cresal	8-61	--	--	493	3	Produced Gas
Red Creek, Cut Bank	Humble	Waterflood	5-Spot	6-65	285	1,862	2,224	8	Madison
Richey SW, Dawson Bay-Interlake	Sinclair Oil	"	One Well Pilot	12-65	8	259	782	1	Fox Hills
Stensvad, Tyler B	Pan American	"	Periphal	2-63	4,070	--	3,292	5	Mission Canyon
						TOTAL	193,768		

TOTAL
89,803
B.O.P.D.

B.O.P.D. (THOUSANDS)

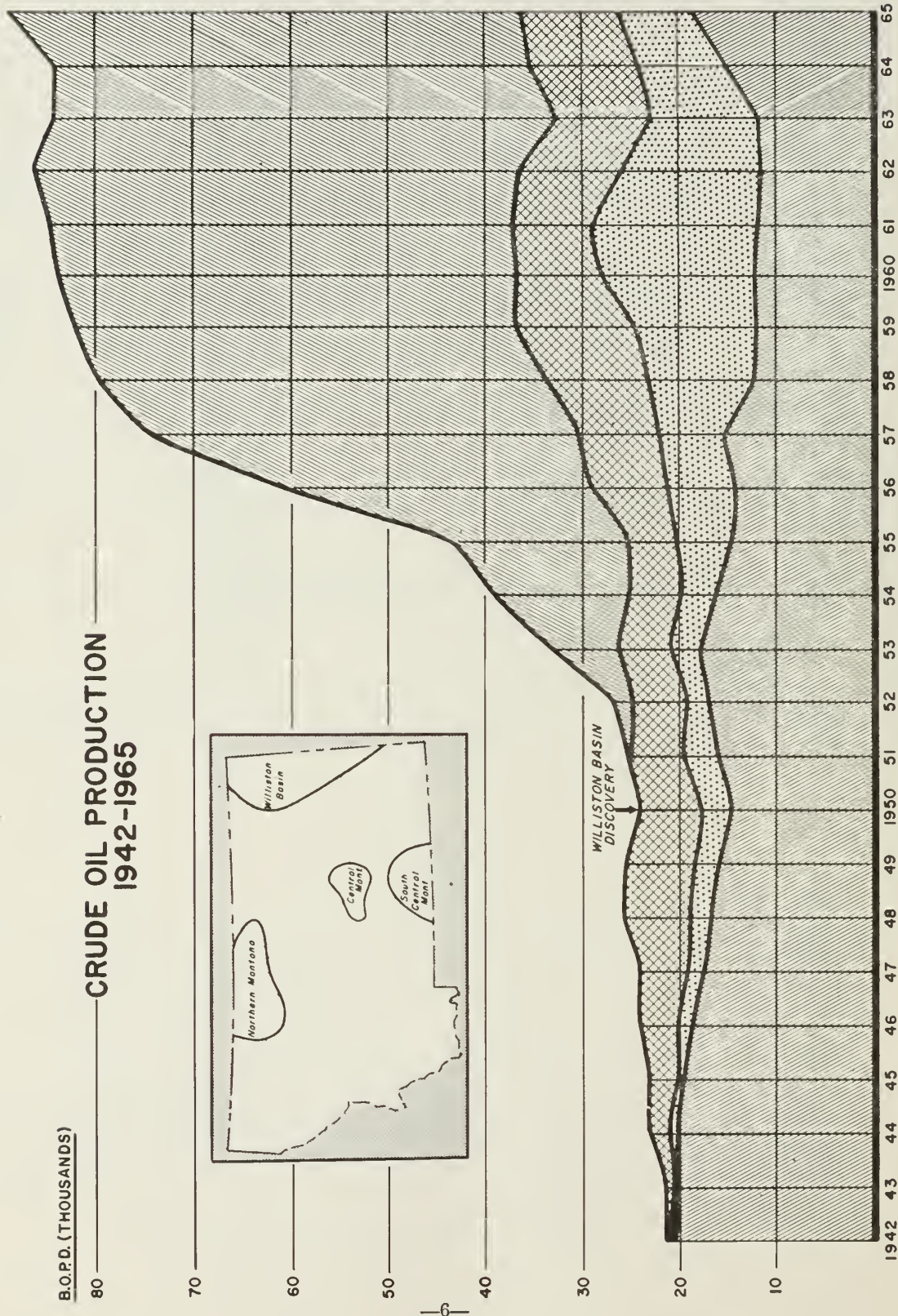
CRUDE OIL PRODUCTION 1942-1965

PERCENT
WILLISTON
BASIN 59.5 %

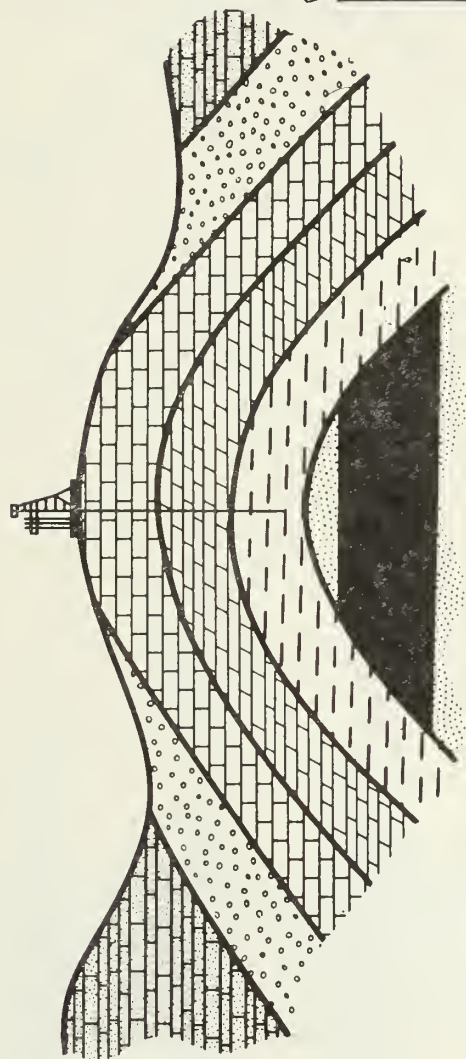
SOUTH
CENTRAL
MONTANA 11.0 %

CENTRAL
MONTANA 8.7 %

NORTHERN
MONTANA 20.8 %

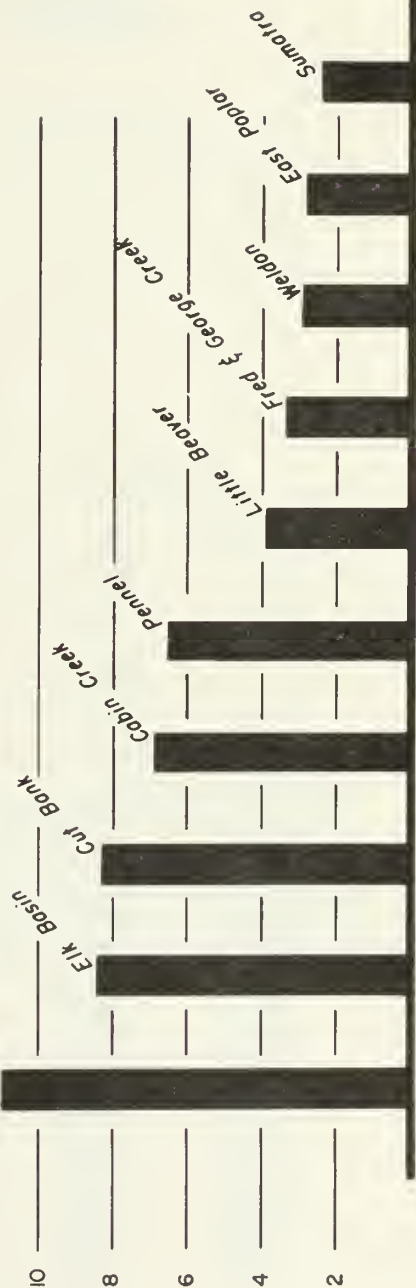


TOP TEN FIELDS Crude Oil Production 1965



Thousands of Barrels of Oil per Day

Pine

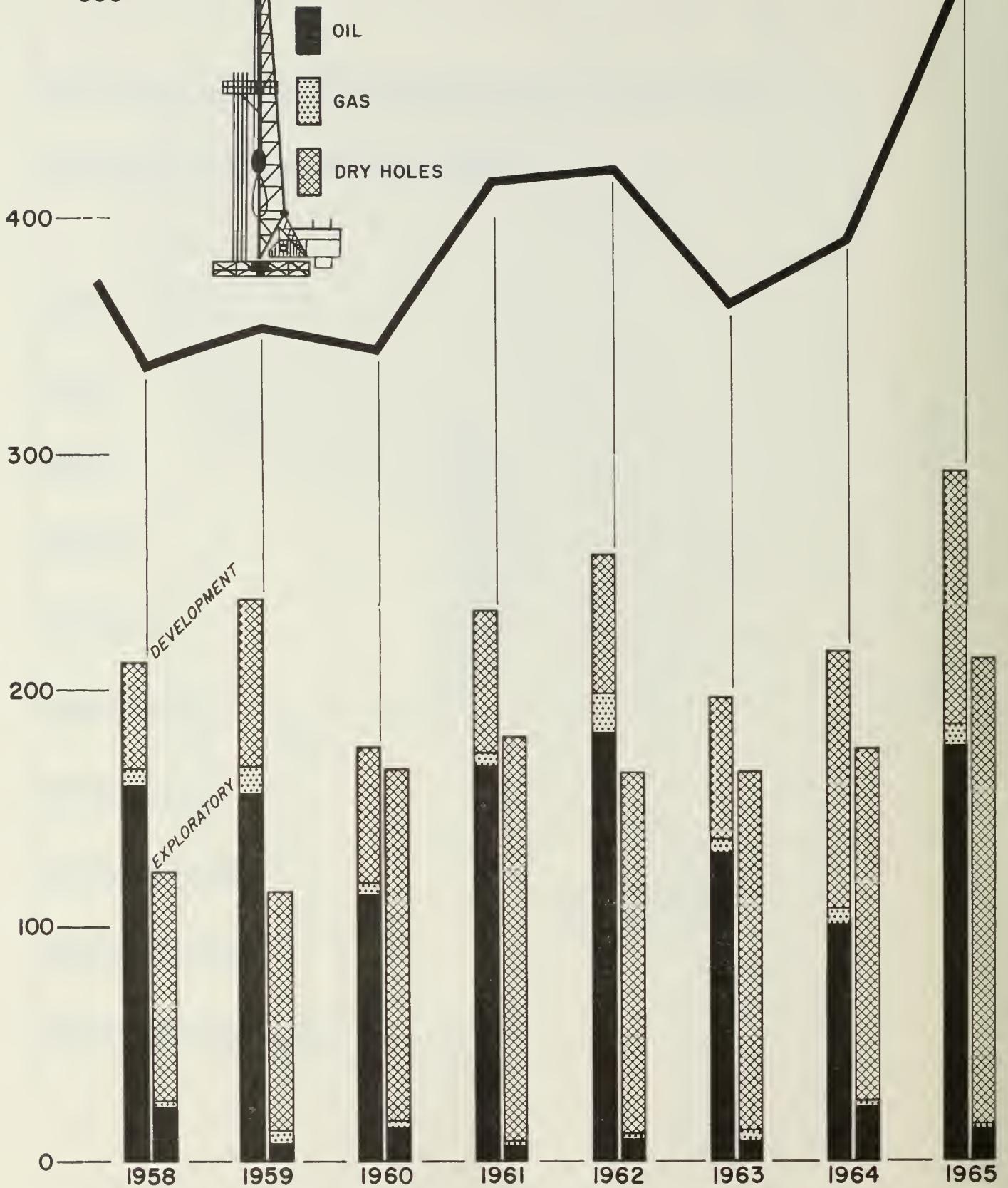


Remaining
80 Fields

Top Ten Fields

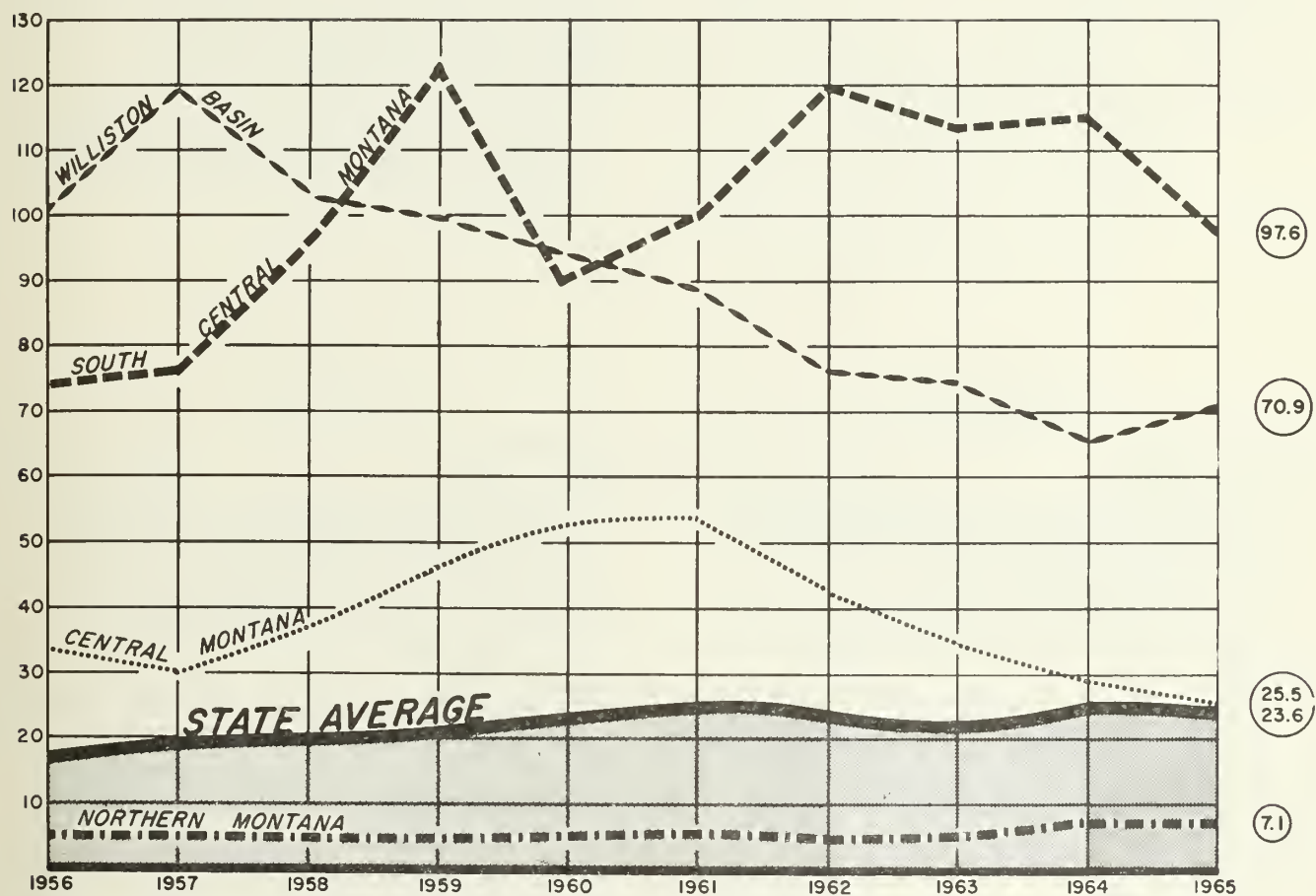


NUMBER OF
WELLS DRILLED
500 —



— AVERAGE —
DAILY PRODUCING RATE

B.O.P.D. / WELL



ARCH APEX

County: Toole

Discovery Well:

Name: A. A. Oil Corp., No. 1 John Fey
Location: SE SW SW Sec. 22, T. 37N., R. 2E.
Date Completed: 1942
Total Depth: 1552'
Initial Potential: Unknown

Deepest Well: A. A. Oil Corp., No. 9 Parsell, SW SW Sec. 4, T. 36N., R. 3E., T.D. 3221'. Madison (Mississippian).

Spacing Regulations: (Blackleaf Gas Pool)
330' from any legal subdivision line; 2400' from any other drilling or producible gas well producing from the same reservoir; 75' topographic tolerance. (Order No. 4-60).

No. Producing Wells: 13

Type of Trap: Stratigraphic

Productive Formations: Blackleaf (Cretaceous)

Probable Drive Mechanism: Volumetric

ASH CREEK

County: Big Horn

Discovery Well:

Name: McDermott-Shell, Elsie Berry No. 1
Location: NW SW Sec. 24, T. 58N., R. 85W., Sheridan County, Wyoming.
Date Completed: April 26, 1952
Total Depth: 4799'
Initial Potential: 180 BOPD, 20 BWPD.

Spacing Regulations:
Spacing waived within unitized portion of field except that no well may be drilled closer than 660' from the unit boundary. (Order No. 4-65).

No. Producing Wells: 8

Type of Trap: Anticline

Productive Formations: Shannon sandstone of Upper Cretaceous age.

Probable Drive Mechanism: Partial water drive and depletion drive.

Secondary Recovery:

A waterflood project was approved in July, 1964. Water injections were started October 15, 1964.

BANNATYNE

County: Teton

Discovery Well:

Name: Genou Oil & Gas, Speer No. 1
Location: NW NW Sec. 8, T. 25N., R. 1E.
Date Completed: July 21, 1927
Total Depth: 1580'
Initial Potential: 30 BOPD.

Deepest Well: Thomas Carney, Speer No. 2, T.D. 3115'

Spacing Regulations:

Center of 10 acre tracts, 50' tolerance for topographic conditions, delineated by Commission Order No. 20-58.

No. Producing Wells: 9

Type of Trap: Anticline

Productive Formations: Swift (Jurassic), Madison (Mississippian)

Probable Drive Mechanism: Water drive

Secondary Recovery:

A pilot waterflood of the Swift formation was approved by Order No. 12-61. Operations were suspended in January, 1963 after injecting 16,549 barrels of water.

BASCOM

County: Rosebud

Discovery Well:

Name: Anschutz Oil, Sibley 1
Location: NW NW Section 11, T. 10N., R. 31E.
Date Completed: August 8, 1962
Total Depth: 4850'
Initial Potential: 408 BOPD.

Deepest Well: Above well.

Spacing Regulations:

Temporary 80-acre spacing expired September 13, 1963. State-wide spacing now applies. (Order No. 10-63).

No. Producing Wells: 1

Type of Trap: Structural and Stratigraphic.

Productive Formations: Tyler

Probable Drive Mechanism: Depletion Drive

BEARS DEN

County: Liberty

Discovery Well:

Name: Kenneth Frazier, Ritter-Govt. No. 1-X
Location: SW SE Sec. 12, T. 36N., R. 5E.
Completed: July 6, 1924
Total Depth: 3290'
Initial Potential: 5,000 MCFGPD

Deepest Well: Above well.

Spacing Regulations:

State-wide.

No. Producing Wells: 5

Type of Trap: Anticline

Productive Formations: Kootenai (Lower Cretaceous)

Probable Drive Mechanism: Depletion and gas cap drive.

BELFRY

County: Carbon

Discovery Well:

Name: Carter, Wheatley-Govt. No. 1
Location: NW NW Sec. 7, T. 9S., R. 22E.
Dated Completed: March 22, 1958
Total Depth: 12,185'
Initial Potential: 196 BOPD, 1,121 MCFGPD

Deepest Well: Above well.

Spacing Regulations:

State-wide.

No. Producing Wells: 1

Type of Trap: Stratigraphic

Productive Formations: Fuson (Lower Cretaceous)

Probable Drive Mechanism: Depletion and solution gas drive.

BENRUD

County: Roosevelt

Discovery Well:

Name: Cooperative Refinery Association, Listug-Olson "A" 1
Location: NE SW Sec. 34, T. 31N., R. 47E.
Date Completed: December 7, 1961
Total Depth: 7620'
Initial Potential: 498 BOPD, 16/64" ck., no water

Deepest Well: Above well (Devonian)

Spacing Regulations:

(Nisku Formation) 160-acre spacing units with permitted well anywhere within a 1320' square in the center of each unit. (Order Nos. 1-62, 44-62, 2-63 and 6-65).

Special Field Rules: Semi-annual bottom hole pressure surveys.

No. Producing Wells: 1

Type of Trap: Structural

Productive Formation: Nisku (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Excess water injected into the Judith River formation. Order No. 64-62.

BENRUD—EAST

County: Roosevelt

Discovery Well:

Name: Murphy Corp., Ft. Peck Tribal 1-A
Location: SE NW Sec. 36, T. 31N., R. 47E.
Date Completed: December 13, 1962
Total Depth: 7804'
Initial Potential: 503 BOPD

Deepest Well: Above well.

Spacing Regulations:

(Nisku Formation). 160-acre spacing units with permitted well anywhere within a 1320' square in the center of each unit. (Order Nos. 2-64, 6-65).

Special Field Rules:

Semi-annual bottom hole pressure surveys and quarterly well tests.

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

BENRUD—NORTHEAST

County: Roosevelt

Discovery Well:

Name: Murphy Oil Corp., Mule Creek Allotted 1
Location: SW SE Sec. 20, T. 31N., R. 48E.
Date Completed: September 10, 1964.
Total Depth: 7864'
Initial Potential: 408 BOPD.

Deepest Well: Above well.

Spacing Regulations:

160-acre spacing units with permitted well anywhere within a 1320' square in the center of each unit. (Order No. 35-64, 6-65).

Special Field Rules: Semi-annual bottom-hole pressure surveys and quarterly well tests.

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

BIG COULEE

County: Stillwater and Golden Valley

Discovery Well:

Name: Northern Natural Gas, NP "B" 1
Location: NW SE Sec. 31, T. 5N., R. 20E.
Date Completed: September 19, 1954
Total Depth: 2145'
Initial Potential: 5,515 MCFGPD

Deepest Well: Above Well (Cambrian)

Spacing Regulations:
State-wide.

No. Producing Wells: 4

Type of Trap: Anticline

Productive Formations: Lakota (Lower Cretaceous).
Morrison (Jurassic)

Probable Drive Mechanism: Water drive

BIG WALL

County: Musselshell

Discovery Well:

Name: Texaco, NP No. 1
Location: SE NE NW Sec. 19, T. 10N., R. 27E.
Date Completed: July 1, 1948
Total Depth: 3139'
Initial Potential: 9 BOPD.

Deepest Well: Texaco, Zoerb, No. 1, Section 18, T. 10N., R. 27E. Kibbey (Mississippian). T.D. 3617'

Spacing Regulations:

(Amsden Dolomite and Basal Amsden Sand). 330' from lease or property line, 990' between wells drilling or producible from the same reservoir on the same lease or unit. (Order No. 12-54).

No. Producing Wells: 20

Type of Trap: Structural

Productive Formations: Amsden (Pennsylvanian);
Tyler (Pennsylvanian)

Probable Drive Mechanism: Amsden, water drive;
Tyler, depletion.

Water Disposal: The Tyler "A" sand has previously been used as a water disposal formation. Water injection was ceased on November 1, 1961 after approximately 3,200,000 barrels had been injected.

BLACKFOOT

County: Glacier

Discovery Well:

Name: Union Oil Co., Muntzing No. 1
Location: NE NW Sec. 11, T. 37N., R. 6W.
Date Completed: October, 1956
Total Depth: 3542'
Initial Potential: 15 BOPD

Deepest Well: Mobil, F-34-3-1. Madison (Mississippian). T.D. 3687'

Spacing Regulations:

(Cut Bank and Madison). 40-acre spacing units as set forth in Order No. 3-57; well location in geometric center of each spacing unit, 300' tolerance. (Order No. 3-57).

Special Field Rules:

Dual completion of Cut Bank and Madison on approval of Commission's Petroleum Engineer. (Order No. 3-57).

No. Producing Wells: 11

Type of Trap: Structural and stratigraphic

Productive Formations: Cut Bank Sand (Cretaceous);
Madison (Mississippian).

Probable Drive Mechanism: Partial water drive and depletion drive.

BLACKFOOT—EAST

County: Glacier

Discovery Well:

Name: Dnnoco, Inc., Lozing No. 1

Location: NW NW NE Sec. 7, T. 37N., R. 5W.

Date Completed: October 6, 1965

Total Depth: 3464'

Initial Potential: 35 BOPD (P).

Deepest Well: Above well. Madison (Mississippian).

Spacing Regulations:

(Cut Bank Sand). 40-acre spacing units consisting of each governmental quarter-quarter section; well location no closer than 330' from spacing unit boundary. (Order No. 41-65).

No. Producing Wells: 1

Type of Trap: Probably stratigraphic

Productive Formation: Cut Bank (Cretaceous)

Probable Drive Mechanism: Depletion drive

BLACKLEAF CANYON

County: Teton

Discovery Well:

Name: Northern Natural Gas, Blackleaf-Federal "A" No. 1

Location: NW SE NE Sec. 13, T. 26N., R. 9W.

Date Completed: May 22, 1958

Total Depth: 6323'

Initial Potential: 5,293 MCFGPD

Deepest Well: Above well.

Spacing Regulations:

State-wide.

No. Producing Wells: 1 (Shut-in)

Type of Trap: Fault block

Productive Formation: Madison (Mississippian)

Probable Drive Mechanism: Unknown

BLOOMFIELD

County: Dawson

Discovery Well:

Name: Pan American, Steffen 1

Location: NE NW NE Sec. 31, T. 20N., R. 53E.

Date Completed: October 12, 1964

Total Depth: 11,120'

Initial Potential: 55 BOPD

Deepest Well: Above well.

Spacing Regulations:

State-wide.

No. Producing Wells: (Field Abandoned)

Type of Trap: Unknown

Productive Formation: Dawson Bay (Devonian)

Probable Drive Mechanism: Unknown

BORDER

County: Toole

Discovery Well:

Name: Vanalta Oil Co., Ltd., No. 1

Location: L.S.D. 3, Sec. 4, T. 1N., R. 16W., Alberta, Canada.

Date Completed: September 25, 1929

Total Depth: 2477'

Initial Potential: 85 BOPD

Deepest Well: Emprie State, Iowa Holding Co. No. 2. Jefferson (Devonian). T.D. 4920'

Spacing Regulations:

(Moulton, Sunburst and Cut Bank Pools). Oil: 220' from boundary of legal subdivision line, 430' between wells drilling or producible from the same reservoir on the same lease or unit, 75' topographic tolerance except for those wells adjacent to legal subdivision lines. (Order No. 7-54). Gas: 330' from boundary of legal subdivision line, 2400' from every other drilling or producible well producing from the same reservoir on the same lease or unit, 75' topographic tolerance except for those wells adjacent to legal subdivision lines. (Order 7-54).

Special Field Rules:

Order No. 7-54 outlines special procedures pertaining to cable drilling, water production reports, casing pulling and plugging methods. General Rules No. 207, 211, 219, 221, 223, and 224 are suspended.

No. of Producing Wells: 6

Type of Trap: Stratigraphic and structural

Productive Formations: Cut Bank (Lower Cretaceous)

Probable Drive Mechanism: Depletion drive

BOWDOIN

County: Phillips and Valley

Discovery Well:

Name: Martin well

Location: Sec. 18, T. 31N., R. 35E.

Date Completed: 1913

Total Depth: 740'

Initial Potential: Unknown

Deepest Well: Texaco, Dupont No. 1, Sec. 8, T. 32N., R. 32E. Cambrian. T.D. 5855'

Spacing Regulations:

(Gas only). One well to each quarter-section; at least 1000' from any lease boundary and 2000' between wells; field not delineated. (Order No. 29-55)

No. Producing Wells: 349

Type of Trap: Structural

Productive Formations: Bowdoin and Phillips sands in upper part of Colorado shale (Cretaceous)

Probable Drive Mechanism: Volumetric

BOWES

County: Blaine

Discovery Well:

Name: California, Johnson & Hobson No. 1

Location: NE NE NE Sec. 9, T. 31N., R. 19E.

Date Completed: October 17, 1926

Total Depth: 4700'

Initial Potential: Show oil

Deepest Well: Northern Ordnance, Guertzen No. 5, Sec. 1, T. 31N., R. 19E. Devonian. T. D. 5082'

Spacing Regulations:

Oil: (Sawtooth Fm.) 330' from lease or property line, 990' between wells drilling or producible from the same reservoir on the same lease or unit. (Order No. 13-54).

Gas: (Eagle and Virgelle Fms.) 660' from boundary of legal subdivision line, 1320' from every other drilling or producible well on the same lease or unit, 75' topographic tolerance except for those wells adjacent to legal subdivision lines. (Order No. 23-54).

Special Field Rules:

State-wide. G. O. R. tests and subsurface pressure tests within 30 days following completion or 20 days following re-completion of all oil and gas wells. (Order No. 13-54).

No. Producing Wells: 52

Type of Trap: Structural

Productive Formations: Gas-Eagle (Upper Cretaceous); Oil—Sawtooth (Jurassic)

Probable Drive Mechanism: Eagle, volumetric; Sawtooth, water drive.

Secondary Recovery: A pilot five spot waterflood was initiated in the Sawtooth formation on May 23, 1961. Operation had expanded to five injection wells in November, 1965.

BRADY

County: Pondera

Discovery Well:

Name: Texaco, Inc., Schlepp 1

Location: SE SE SE Sec. 21, T. 27N., R. 2W.

Date Completed: September 10, 1943

Total Depth: 1725'

Initial Potential: 14 BOPD.

Spacing Regulations:

(Brady Sand Pool). 10-acre spacing units; wells located in approximate center of each unit; 75' topographic tolerance. (Order No. 34-62).

No. Producing Wells: 7

Type of Trap: Stratigraphic

Productive Formations: Sunburst (Lower Cretaceous)

Probable Drive Mechanism: Depletion drive

BREDETTE—NORTH

County: Daniels and Roosevelt

Discovery Well:

Name: California Company, Paulson No. 1

Location: NW SW Sec. 34, T. 33N., R. 49E.

Date Completed: May 27, 1956

Total Depth: 7475'

Initial Potential: 114 BOPD, 7/64" ck.

Deepest Well: Above Well. Madison (Mississippian)

Spacing Regulations:

Field reverted back to state-wide spacing by Order No. 23-65.

No. Producing Wells: All wells in field now plugged and abandoned.

Type of Trap: Structural

Productive Formations: Charles (Mississippian)

Probable Drive Mechanism: Water drive

BUTCHER CREEK

County: Carbon

Discovery Well:

Name: Cruse Oil Synd., No. 1

Location: NE SE Sec. 32, T. 6S., R. 18E.

Date Completed: 1889

Total Depth: 1100'

Initial Potential: Unknown

Deepest Well: King Oil No. 1 Big Blue, NE SE Sec. 32, T. 6S., R. 18E. T. D. 1203'

Spacing Regulations: At least 320' between wells, all locations subject to approval of Commission's Petroleum Engineer. (Order No. 17-60).

No. Producing Wells: None

Type of Trap: Stratigraphic

Productive Formation: Greybull Sand.

Probable Drive Mechanism: Unknown

CABIN CREEK

County: Fallon

Discovery Well:

Name: Shell, No. 22-33

Location: NE SE NW Sec. 33, T. 10N., R. 58E.

Date Completed: June 9, 1953

Total Depth: 9412'

Initial Potential: 1248 BOPD, 32 BWPD, flow into open line.

Deepest Well: Shell, 21-17, Sec. 17, T. 10N., R. 58E. Pre-Cambrian, T. D. 10,573'

Spacing Regulations:

Spacing waived until present Unit Agreement becomes inoperative. (Order No. 36-62).

Special Field Rules:

General Rules No. 213 (Deviation), 218 (Commingling), and 219 (Dual Completion) are suspended until present Unit Agreement becomes inoperative. (Order No. 36-62).

No. Producing Wells: 109 (21 Madison, 88 Siluro-Ordovician).

Type of Trap: Structural

Productive Formations: Mission Canyon (Mississippian), Interlake (Silurian), Red River (Ordovician).

Probable Drive Mechanism: Mission Canyon, water drive; Siluro-Ordovician, depletion drive.

Secondary Recovery:

Waterflood of the Siluro-Ordovician reservoir has been expanded to a full scale peripheral flood.

Water Disposal: Most of the produced water is injected back into the Siluro-Ordovician reservoir. A limited amount of water is injected into the Mission Canyon formation. (Order No. 60-62).

CAT CREEK

County: Garfield and Petroleum

Discovery Well:

Name: Frantz Corp., No. 1

Location: SW SE NW Sec. 21, T. 15N., R. 30E.

Date Completed: February, 1920

Total Depth: 998'

Initial Potential: 10 BOPD.

Deepest Well: Arro-California, Charles No. 4, Sec. 21, T. 15N., R. 30E. Cambrian. T.D. 5705'.

Spacing Regulations:

(Kootenai, Morrison and Ellis). 220' from lease or property line, 440' from every other drilling or producible well producing from the same reservoir on the same lease or unit. (Order No. 17-55).

No. Producing Wells: 99

Type of Trap: Structural

Productive Formations: Kootenai, Morrison, Swift

Probable Drive Mechanism: Depletion drive

Secondary Recovery: A portion of the field has been unitized and a waterflood secondary recovery program is in progress. More details concerning this project appear earlier in the report.

CEDAR CREEK

County: Fallon and Wibanx

Discovery Well:

Name: Eastern Montana Oil & Gas Co.

Location: NE NE Sec. 20, T. 14N., R. 55E.

Date Completed: November, 1912

Total Depth: 2710'

Initial Potential: 2,500 MCFGPD (est.)

Spacing Regulations:

(Gas only). Judith River: 1200' from quarter-section line, 2400' from every other drilling or producible well on the same lease or unit, 75' topographic tolerance. (Order No. 33-54).

Eagle: 320-acre spacing units; wells located in approximate center of NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of each section; 200' topographic tolerance. (Order No. 1-61).

No. Producing Wells: 240

Type of Trap: Structural

Productive Formations: Judith River (Upper Cretaceous) Eagle (Upper Cretaceous)

Probable Drive Mechanism: Volumetric

CLARKS FORK—NORTH

County: Carbon

Discovery Well:

Name: British-American, Montana State No. 1
Location: NE SE Sec. 16, T. 9S., R. 22E.
Date Completed: January 30, 1956
Total Depth: 10,877'
Initial Potential: 338 BOPD, 1681 MCFGPD, 18/64" ck.

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

State-wide.

No. Producing Wells: 1

Type of Trap: Structural and stratigraphic

Productive Formations: Dakota (Lower Cretaceous).
Lakota (Lower Cretaceous)

Probable Drive Mechanism: Gas cap and water drive

CONRAD—SOUTH

County: Pondera

Discovery Well:

Name: Rockhill Oil Co., No. 1 Thompson
Location: SE NW SE Sec. 4, T. 27N., R. 2W.
Date Completed: July 16, 1954
Total Depth: 2125'
Initial Potential: 4 BOPD.

Deepest Well: Above well. Madison (Mississippian).

Spacing Regulations: (Dakota Formation)

10-acre spacing units; wells located in approximate center of each unit; 75' topographic tolerance. (Order Nos. 34-62 and 31-63).

No. Producing Wells: 6

Type of Trap: Stratigraphic

Productive Formations: Dakota (Lower Cretaceous)

Probable Drive Mechanism: Depletion drive.

CUPTON

County: Fallon

Discovery Well:

Name: Rothschild, Northwest Improvement No. 44-15
Location: SE SE Sec. 15, T. 9N., R. 59E.
Date Completed: August 30, 1955
Total Depth: 9785'
Initial Potential: 306 BOPD, 165 BWPD.

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:

(Red River Formation). 80-acre spacing units consisting of E½ and W½ of each governmental quarter section; well locations in the SE¼ and NW¼ of each quarter section; 75' topographic tolerance. (Order Nos. 31-55, 18-56, 6-57, 6-62).

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

CUT BANK

County: Glacier and Toole

Discovery Well:

Name: Sand Point, Berger No. 1 (Gas Well)
Location: SE SE NW Sec. 1, T. 35N., R. 5W.
Date Completed: 1926
Total Depth: 2978'
Initial Potential: 8,000 MCFGPD.

Deepest Well: Union, Stufft 418-7. Cambrian. T.D. 5500'

Spacing Regulations:

(Moulton, Sunburst, Cut Bank, and Madison Reservoirs) Oil: 330' from legal subdivision line; 650' from every other drilling or producible well producing from the same reservoir on the same lease or unit, except that a five-spot location on a 40-acre parcel is permitted; 75' topographic tolerance except for those wells adjacent to the boundaries of any legal subdivision line. (Order No. 10-54). Gas: 330' from legal subdivision line; 2400' from every other drilling or producible well producing from the same reservoir; 75' topographic tolerance. (Order No. 10-54).

Special Field Rules:

State-wide rules except Rules 207, 211, 219, 221, 223 and 224 do not apply.

No. Producing Wells: 1309

Type of Trap: Stratigraphic

Productive Formations: Kootenai (Lower Cretaceous);
Madison (Mississippian)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: Eleven units have been formed for the purpose of initiating waterflood operations. More details appear earlier in this report.

DEER CREEK

County: Dawson

Discovery Well:

Name: Texaco, No. 1 NP "G" (NCT-1)
Location: SW SW Sec. 23, T. 17N., R. 53E.
Date Completed: August 29, 1952
Total Depth: 10,128'
Initial Potential: 191 BOPD.

Deepest Well: Texaco, Ekland No. 1, Sec. 26, T. 17N., R. 53E. Red River (Ordovician). T.D. 10,228'

Spacing Regulations:

(Interlake and Red River). 80-acre spacing units consisting of any two adjacent quarter-quarter sections in the governmental survey; well locations in the center of NE $\frac{1}{4}$ and SW $\frac{1}{4}$ of each quarter section; 75' topographic tolerance. (Order No. 23-55, 14-59).

Special Field Rules:

Permitted to commingle production from the Interlake-Silurian, Stony Mountain-Ordovician, Red River-Ordovician and Charles-Mississippian pay zones upon approval of Commission's Petroleum Engineer. (Order No. 18-63).

No. Producing Wells: 4

Type of Trap: Structural

Productive Formations: Red River (Ordovician); Interlake (Silurian); Stony Mountain (Ordovician); Charles (Mississippian).

Probable Drive Mechanism: Water drive

Water Disposal: Excess produced water is injected into the Dakota and Lakota formations. (Orders 6-56 and 3-58).

DELPHIA

County: Musselshell

Discovery Well:

Name: Texota, Goffena No. 1
Location: NW NE Sec. 26, T. 9N., R. 27E.
Date Completed: December 20, 1956
Total Depth: 6311'
Initial Potential: 124 BOPD

Deepest Well: Texota-Bradley, Goffena No. A-1, Charles (Mississippian). T.D. 6811'

Spacing Regulations:

State-wide.

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

DEVILS BASIN

County: Musselshell

Discovery Well:

Name: Van Duzen Oil, No. 1
Location: NE SW NW Sec. 24, T. 11N., R. 24E.
Date Completed: December, 1919
Total Depth: 2110'
Initial Potential: 12 BOPD

Deepest Well: Clark Drilling Company, NP No. 1. Cambrian. TD. 4081'.

Spacing Regulations:

State-wide.

No. Producing Wells: Shut-in

Type of Trap: Structural

Productive Formations: Heath (Upper Mississippian)

Probable Drive Mechanism: Depletion drive

DEVON

County: Toole

Discovery Well:

Name: Minot, Shelby Holding Co., No. 1
Location: SW NE Sec. 18, T. 33N., R. 2E.
Date Completed: 1926
Total Depth: 1795'
Initial Potential: 3500 MCFGPD

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

State-wide.

No. Producing Wells: 14

Type of Trap: Stratigraphic

Productive Formations: Blackleaf (Lower Cretaceous)

Probable Drive Mechanism: Volumetric

DRY CREEK

County: Carbon

Discovery Well:

Name: Ohio Oil Company, NP No. 1
Location: 1940' N/s, 2900' W/E, Sec. 11, T. 7S., R. 21E.
Date Completed: March 31, 1929
Total Depth: 5772'
Initial Potential: 6500 MCFGPD (Frontier)

Deepest Well: Ohio Oil Company, NP No. 18, Sec. 3, T. 7S., R. 21E. Cambrian. T.D. 8882'

Spacing Regulations:
State-wide.

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Eagle (Upper Cretaceous) gas; Frontier (Upper Cretaceous) gas; Greybull (Lower Cretaceous) oil; Pryor (Lower Cretaceous) oil

Probable Drive Mechanism: Gas sand, volumetric; oil sands, combinations water and depletion drive.

DWYER

County: Sheridan

Discovery Well:

Name: Mobil, Muller No. F-44-20-P
Location: SE SE Sec. 20, T. 32N., R. 59E.
Date Completed: January 8, 1960
Total Depth: 12,033'
Initial Potential: 51 BOPD, 49 BWPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:
(Madison Formation). 160-acre spacing units; well location in SE $\frac{1}{4}$ of each spacing unit; 175' topographic tolerance. (Order Nos. 25-60, 29-61).

Special Field Rules:
Semi-annual bottom hole pressure surveys in May and October; quarterly well tests in January, April, July and October. (Order Nos. 25-60 and 29-61).

No. Producing Wells: 21

Type of Trap: Probably combination structural and stratigraphic.

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water is injected into the Dakota formation. (Order 26-63).

ELK BASIN

County: Carbon

Discovery Well:

Name: Hurst No. 1
Location: Sec. 30, T. 58N., R. 99W., Park County, Wyoming
Date Completed: 1915
Total Depth: 1402'
Initial Potential: 1000 BOPD (Frontier)

Spacing Regulations:
Commission waives Rule No. 203 within Unit Area. (Order No. 10-61).

No. Producing Wells: 52

Type of Trap: Structural

Productive Formations: Frontier (Upper Cretaceous); Dakota (Lower Cretaceous); Embar (Permian); Tensleep (Pennsylvanian); Madison (Mississippian); Jefferson (Devonian)

Probable Drive Mechanism: Frontier, gravity drainage; Embar-Tensleep, gravity drainage; Madison, water drive; Jefferson, water drive.

Secondary Recovery: Frontier, crestal gas injection with sweet gas; Embar-Tensleep, full pressure maintenance by crestal injection of inert gas, and water injection into the Madison. More details concerning these projects appear earlier in the report.

ELK BASIN—NORTHWEST

County: Carbon

Discovery Well:

Name: Sinclair Wyoming Oil Co., NW EB Unit No. 1
Location: SW NW Sec. 28, T. 9S., R. 23E.
Date Completed: July 22, 1947
Total Depth: 6795'
Initial Potential: 494 BOPD.

Deepest Well: Sinclair, Pre-Madison Unit 1, T.D. 9463'. Cambrian

Spacing Regulations:
Spacing waived within unitized portion except that bottom of hole shall not be closer than 330' from unit boundary and surface location shall not be closer than 1320' from any other well. Outside of unit area, 330' from legal subdivision line and 1320' between wells; 75' topographic tolerance. (Orders No. 43-63 and 28-64).

No. Producing Wells: 16

Type of Trap: Structural

Productive Formations: Frontier (Upper Cretaceous). Madison (Mississippian). Tensleep (Pennsylvanian).

Probable Drive Mechanism: Frontier, depletion drive; Madison, water drive; Tensleep, gravity drainage, gas cap.

Secondary Recovery: Waterflood operations are being conducted in the Frontier formation. Additional details appear earlier in this report. (Orders No. 9-57 and 17-61).

FAIRVIEW

County: Richland

Discovery Well:

Name: Southern Union et al, Hunter No. 1
Location: SW SW Sec. 24, T. 25N., R. 58E.
Date Completed: November 10, 1965
Total Depth: 12,835'
Initial Potential: 815 BOPD.

Spacing Regulations:

(Red River Formation). 160-acre spacing units consisting of each governmental quarter section; well location in center of SW $\frac{1}{4}$ of each spacing unit; 100' topographic tolerance. (Order No. 48-65 Corrected).

Special Field Rules:

Semi-annual bottom-hole pressure surveys in May and October of each year.

No. Producing Wells: 1

Type of Trap: Structural

Productive Formation: Red River (Ordovician)

Probable Drive Mechanism: Unknown

FERTILE PRARIE

County: Fallon

Discovery Well:

Name: Mon-O-Co., Ferguson-Goldin No. 1
Location: SE SW Sec. 18, T. 7N., R. 61E.
Date Completed: November 8, 1954
Total Depth: 9286'
Initial Potential: 132 BOPD

Deepest Well: McAlester Fuel, NP No. A-1, Winnipeg (Ordovician), T. D. 9684'

Spacing Regulations:

(Red River Formation). 80-acre spacing units consisting of north-south rectangular units; well location in center of NW $\frac{1}{4}$ AND SE $\frac{1}{4}$ of each governmental quarter section; 75' topographic tolerance. (Order No. 3-56; redelineated by Order No. 7-62).

No. Producing Wells: 3

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

FLAT COULEE

County: Liberty

Discovery Well:

Name: Northern Petroleum, Northern Farms 2
Location: NE SW Sec. 10, T. 37N., R. 5E.
Date Completed: 1933
Total Depth: 2879'
Initial Potential: 30 BOPD (Swift)

Spacing Regulations:

Swift Reservoir (Oil): 40-acre spacing units; well location in approximate center of each spacing unit; 150' topographic tolerance. (Order No. 16-62). Order No. 19-63 redelineated field.

Swift Reservoir (Gas): State-wide spacing.

Sawtooth Reservoir (Oil): 330' from boundary of any legal subdivision; 650' from every other drilling or producible well producing from the same reservoir on the same lease or unit except that a five-spot location on a 40-acre parcel is permitted; 75' topographic tolerance except for those wells adjacent to legal subdivision boundaries. (Order No. 36-54).

Bow Island Reservoir (Gas): 330' from boundary of legal subdivision line; 1320' from every other drilling or producible well producing from the same reservoir. (Order No. 16-55).

Special Field Rules:

General Rules No. 207, 211, 219, 221, 223, and 224 do not apply for the Sawtooth (oil) and Bow Island (gas) reservoirs. Order No. 36-54 sets forth certain procedures for cable drilling, water production reports, pulling casing and plugging methods.

No. Producing Wells:

Oil: 30 (Swift)
Gas: 4 (1 Swift, 3 Blackleaf)

Type of Trap: Structural and Stratigraphic

Productive Formations:

Oil: Swift (Jurassic)
Gas: Swift (Jurassic)
Blackleaf (Cretaceous)

Probable Drive Mechanism:

Swift (Depletion drive)
Sawtooth (Water drive)
Blackleaf (Depletion drive)

FLAT LAKE

County: Sheridan

Discovery Well:

Name: California, Hangen 1
Location: SW SW Sec. 18, T. 37N., R. 58E.
Date Completed: June 15, 1964
Total Depth: 6607'
Initial Potential: 210 BOPD.

Deepest Well: California, No. 1 Ward, NE NW Sec. 12, T. 37N., R. 57E., T.D. 6904'. Madison

Spacing Regulations:

(Ratcliffe Pool of Madison). 160-acre spacing units; well location in approximate center of NE $\frac{1}{4}$ of each quarter section; 200' topographic tolerance. Wells in N $\frac{1}{2}$ of Sections 1 and 2, T. 37N., R. 57E., and Sections 4, 5, and 6, T. 37N., R. 58E., are to be located in center of Lot 6 and Lot 8 of each Section. (Order No. 10-65 Amended). Wells drilled on lands bordering the North Dakota line shall be no closer than 961' to the State line and wells drilled on lands bordering the Canadian line shall be no closer than 1600' from said line. (Order No. 43-65).

Special Field Rules:

Annual bottom-hole pressure surveys in July or August of each year. (Order No. 43-65).

No. Producing Wells: 34

Type of Trap: Combination structural and stratigraphic

Productive Formation: Madison-Ratcliffe (Mississippian)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 39-64 permits disposal of produced water into the Muddy (Newcastle), Dakota or Lakota formations.

FRANNIE

County: Carbon

Discovery Well:

Name: Pan American, Rosenberg C-1
Location: NW NE NW Sec. 25, T. 85N., R. 98W., Park County, Wyoming
Date Completed: February 28, 1928
Total Depth: 2612'
Initial Potential: 9 BOPD.

Spacing Regulations:

Tensleep (Oil): 10-acre well spacing units; well location in center of each unit; 100' topographic tolerance; only four wells permitted in any quarter-quarter section. (Order No. 35-63).

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Tensleep (Pennsylvanian)

Probable Drive Mechanism: Combination water drive and gravity drainage.

FRED & GEORGE CREEK

County: Toole

Discovery Well:

Name: Grannell-Sands Oil, Fey 1
Location: NW NE Sec. 23, T. 37N., R. 2E.
Date Completed: August 15, 1963
Total Depth: 2737'
Initial Potential: 1500 BOPD.

Deepest Well: A.A. Oil Corp., J. Fey 1, NW NW Sec. 26, T. 37N., R. 2E. 2995' Madison (Mississippian)

Spacing Regulations:

Sunburst Sand (Oil): 40-acre spacing units; well location in center of each spacing unit; 250' tolerance for topographic or geologic reasons. (Order No. 29-63). Field re-delineated by Order No. 1-65.

Special Field Rules:

Semi-annual bottom-hole pressure surveys required. Surface casing to be set through base of Eagle formation.

No. Producing Wells: 34

Type of Trap: Stratigraphic

Productive Formations: Sunburst-Swift (Lower Cretaceous-Upper Jurassic)

Probable Drive Mechanism: Solution gas

GAGE

County: Musselshell

Discovery Well:

Name: Northern Ordance, Morris No. 1
Location: SW SW Sec. 15, T. 9N., R. 26E.
Date Completed: September 9, 1943
Total Depth: 7495'
Initial Potential: 120 BOPD

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

State-wide.

No. Producing Wells: 1

Type of Trap: Combination structural and stratigraphic

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

GAGE—SOUTHWEST

County: Musselshell

Discovery Well:

Name: W. C. Partee, Govt. 1

Location: NE SW Sec. 21, T. 9N., R. 26E.

Date Completed: November 6, 1964

Total Depth: 6040'

Initial Potential: 199 BOPD

Deepest Well: Above well. Amsden (Pennsylvanian)

Spacing Regulations:

Temporary 160-acre spacing expired January 14, 1966. State-wide spacing now applies. (Order No. 50-65).

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formation: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

GAS CITY

County: Dawson

Discovery Well:

Name: Shell, No. 33X21

Location: NE NW SE Sec. 21, T. 14N., R. 55E.

Date Completed: June 4, 1955

Total Depth: 9596'

Initial Potential: 202 BOPD, 5 BWPD, 22/64" ck.

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

80-acre spacing units consisting of E½ and W½ of each quarter section; well location in NW¼ and SE¼ of each quarter section; 150' topographic tolerance. Spacing waived in unitized portion of field. (Order No. 29-62).

Special Field Rules:

State-wide rules 213 (Deviation), 218 (Commingling), and 219 (Dual Completion) are waived and suspended for unitized portion of field. (Order No. 29-62).

No. Producing Wells: 27

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 32-61 permits disposal of produced water into the Judith River formation. Order No. 20-64 also permits disposal into the Red River formation below the oil-water contact.

GLENDIVE

County: Dawson

Discovery Well:

Name: Texaco, NP "G" (NCT-1) No. 1

Location: NE NE Sec. 35, T. 15N., R. 54E.

Date Completed: January 10, 1952

Total Depth: 9079'

Initial Potential: 254 BOPD

Deepest Well: Texaco, NP "G" (NCT-1) No. 2, Winnipeg (Ordovician). T.D. 10,537'

Spacing Regulations:

Stony Mountain and Red River Formations: 80-acre spacing units consisting of any two adjacent quarter-quarter sections in the governmental survey; wells located in center of NE¼ and SW¼ of each quarter section; 75' topographic tolerance. (Order No. 27-55). Order Nos. 19-62 and 58-62 re-delineated the field.

No. Producing Wells: 14

Type of Trap: Stratigraphic and structural

Productive Formations: Interlake (Silurian). Stony Mountain-Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 16-63 permits disposal of produced water into the Swift formation.

GOOSE LAKE

County: Sheridan

Discovery Well:

Name: Signal-Caltana Assoc., Carl Peterson 1

Location: NE SE Sec. 19, T. 35N., R. 58E.

Date Completed: June 11, 1962

Total Depth: 7205'

Initial Potential: 42 BOPD.

Deepest Well: Sun-Signal-Caltana, A. Lagerquist 1, SE SW Sec. 9, T. 35N., R. 58E. T.D. 8540' Duperow (Devonian)

Spacing Regulations:

Madison-Ratcliffe Pool: 160-acre spacing units; well locations according to areas. Area I, center of NW¼ of each quarter section; Area II, center of SE¼ of each quarter section; Area III, center of NE¼ of each quarter section; 200' topographic tolerance. (Order No. 42-63).

Special Field Rules:

Semi-annual bottom-hole pressure surveys in May and October. Minimum shut-in period of 48 hours.

No. Producing Wells: 20

Type of Trap: Combination structural and stratigraphic.

Productive Formation: Madison (Mississippian)

Probable Drive Mechanism: Combination solution gas and water drive.

Water Disposal: Produced water is being injected into the Lakota formation. (Order No. 12-64).

GRABEN COULEE

County: Glacier

Discovery Well:

Name: Cardinal Petr., McAlpine 1
Location: NE SW Sec. 3, T. 37N., R. 5W.
Date Completed: December 7, 1961
Total Depth: 2816'
Initial Potential: 56 BOPD.

Spacing Regulations:

Sunburst Reservoir (Oil): 40-acre spacing units; well location anywhere within 40-acre tract, but no closer than 330' from legal subdivision line.

Cut Bank and Madison Reservoirs (Oil): 330' from boundary of any legal subdivision line; 650' from every other drilling or producible well producing from the same reservoir on the same lease or unit; 5-spot location on a 40-acre parcel permitted; 75' topographic tolerance in any direction but no closer than 330' to legal subdivision line. (Order No. 73-62).

No. Producing Wells: 12

Type of Trap: Structural and stratigraphic.

Productive Formations: Sunburst (Lower Cretaceous),
Cut Bank (Cretaceous), Madison (Mississippian).

Probable Drive Mechanism: Depletion drive.

GRANDVIEW

County: Liberty

Discovery Well:

Name: C. H. Thompson, Trustee No. 1 Thompson
Location: NE SW SW Section 7, T. 34N., R. 4E.
Date Completed: May 18, 1930.
Total Depth: 2588'
Initial Potential: 200 MCFGPD (Shut-in)

Deepest Well: Anaconda Copper Mining, No. 4 Blair-
Union Bank, SE NW SW Sec. 15, T. 34N., R. 4E.
T.D. 4309' Jefferson (Devonian).

Spacing Regulations:

State-wide.

No. Producing Wells:

Oil: 2 (Swift)
Gas: 3 (Blackleaf)

Type of Trap: Structural

Productive Formations: Blackleaf (Cretaceous); Swift
(Jurassic).

Probable Drive Mechanism: Unknown

GYPSY BASIN

County: Teton and Pondera

Discovery Well:

Name: Western Oils, Bills No. 1
Location: SW SE SW Sec. 31, T. 28N., R. 6W.
Date Completed: July 8, 1951
Total Depth: 3410'
Initial Potential: 50 BOPD.

Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

Sunburst Reservoir (Oil): 330' from lease lines; no closer than 660' between drilling, producing or producible wells; only two wells per governmental quarter-quarter section or corresponding lot. (Order No. 7-66).

Swift Reservoir (Oil): Same as Sunburst.

Sawtooth-Madison Reservoir (Oil): 40-acre spacing units consisting of each governmental quarter-quarter section; wells located no closer than 330' from lease lines. (Order No. 7-66).

Sunburst and Madison Reservoirs (Gas): 160-acre spacing units; well locations in approximate center of any quarter-quarter section in each 160-acre well spacing unit; no gas well shall be drilled closer than 2340' from the nearest gas well; 150' topographic tolerance. (Order No. 13-59).

Special Field Rules:

All wells completed below the Sunburst formation must use sufficient cement for production casing to assure protection of the Sunburst pay. (Order No. 45-63).

No. Producing Wells: 9 (5-Madison, 4-Sunburst).

Type of Trap: Combination structural and stratigraphic

Productive Formations: Sunburst (Cretaceous), Swift
(Jurassic), Sawtooth-Madison (Jurassic and Mississippian).

Probable Drive Mechanism: Combination water drive and depletion drive.

Secondary Recovery: Order No. 6-64 permits injection of excessive gas (produced with the oil) into the Sunburst gas cap.

HARDIN

County: Big Horn

Discovery Well:

Name: Yellowstone Oil & Gas, Blair No. 1
Location: Sec. 10, T. 1S., R. 33E.
Date Completed: 1913
Total Depth: Unknown
Initial Potential: Unknown

Deepest Well: Daniels Petroleum Co., No. 1, Sec. 13, T. 1S., R. 33E. Madison (Mississippian). T.D. 4195'

Spacing Regulations:

State-wide.

No. Producing Wells: 41 (gas)

Type of Trap: Stratigraphic

Productive Formations: Frontier (Cretaceous)

Probable Drive Mechanism: Volumetric

HIBBARD

County: Rosebud

Discovery Well:

Name: Sinclair, Kesterson No. 1

Location: SE NW Sec. 34, T. 10N., R. 33E.

Date Completed: February 29, 1960

Total Depth: 5240'

Initial Potential: 240 BOPD.

Deepest Well: Above Well. Heath (Mississippian)

Spacing Regulations:

State-wide.

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formation: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

IVAHOE

County: Musselshell

Discovery Well:

Name: Chicago-Republic, No. 1

Location: SW SE NE Sec. 17, T. 11N., R. 31E.

Date Completed: September 15, 1953

Total Depth: 5210'

Initial Potential: 92 BOPD (Morrison)

Deepest Well: Above well. Charles (Mississippian)

Spacing Regulations:

One well per 40-acre governmental quarter-quarter section for production from any one common source of supply of oil underlying said spacing unit; well locations in approximate center of spacing unit; 200' topographic tolerance. (Order No. 7-60).

No. Producing Wells: 18

Type of Trap: Structural and stratigraphic

Productive Formations: 2nd Cat Creek (Cretaceous), Morrison (Jurassic), Amsden (Pennsylvanian), Tyler (Pennsylvanian).

Probable Drive Mechanism: Morrison and Tyler, depletion drive; Amsden, water drive; 2nd Cat Creek, Unknown.

Secondary Recovery:

Waterflood of the Tyler B & C Sands was started in July, 1964. (Order No. 19-64).

KEG COULEE

County: Musselshell

Discovery Well:

Name: American-Climax Petr. Corp., DeJaegher No. 1

Location: SE NE Sec. 31, T. 11N., R. 31E.

Date Completed: April 1, 1960

Total Depth: 4635'

Initial Potential: 177 BOPD.

Spacing Regulations:

(Tyler Formation): 40-acre spacing in southwest portion of field except that spacing is waived in unitized portion. (Order Nos. 3-64, 4-64, 23-64). 80-acre spacing in remainder of field with variable pattern. (Order Nos. 11-60, 28-62); topographic tolerance varies from 100' to 150'. (Order Nos. 11-60, 4-64, 23-64).

Special Field Rules:

Production from Tyler A, B, and C sands within field may be commingled; shut-in bottom hole pressure surveys shall be conducted upon completion of every well; semi-annual bottom hole pressure surveys on key wells in April and October; minimum shut-in time of 24-hours. (Order No. 11-60). Commission Rule 203(b) relative to the buffer zone around the field is waived. (Order No. 16-65).

No. Producing Wells: 22

Type of Trap: Stratigraphic

Productive Formation: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: The northwest portion of the field has been unitized for waterflood operations in the Tyler "C" sand.

KEG COULEE—NORTH

County: Musselshell

Discovery Well:

Name: Lawrence Barker, Jr., et al, Stensvad 1-24

Location: NE SE Sec. 24, T. 11N., R. 30E.

Date Completed: November 10, 1964

Total Depth: 4569'

Initial Potential: 240 BOPD.

Deepest Well: Amerada Petroleum Corp., McCall 1, SW SW Sec. 24, T. 11N., R. 30E. T.D. 4935' Otter (Mississippian)

Spacing Regulations:

40-acre spacing units; well location in approximate center of each spacing unit; 150' topographic tolerance. (Order No. 46-64).

Special Field Rules:

Commission Rule 203(b) relative to buffer zone around the field is waived. (Order No. 16-65).

No. Producing Wells: 3

Type of Trap: Stratigraphic

Productive Formations: Tyler "B" sand (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

KEITH—EAST

County: Liberty

Discovery Well:

Name: Texas Co., Colbry 1
Location: SW SW Sec. 13, T. 36N., R. 6E.
Date Completed: August, 1947
Total Depth: 4970'
Initial Potential: 9000 MCFGPD (Est.).

Deepest Well: Same as above (Cambrian).

Spacing Regulations:

(Blackleaf and Sawtooth). State-wide gas spacing except in unitized portions that were spaced by Order No. 22-62.

No. Producing Wells: 7

Type of Trap: Structural

Productive Formations: Blackleaf (Cretaceous); Sawtooth (Jurassic).

Probable Drive Mechanism: Gas expansion and water drive.

KEVIN-SUNBURST

County: Toole

Discovery Well:

Name: Gordon Campbell-Kevin Syndicate, Goodertz No. 1
Location: NE NE NE Sec. 16, T. 35N., R. 3W.
Date Completed: March 14, 1922
Total Depth: 2540'
Initial Potential: 10 BOPD.

Deepest Well: Lee Edwards, Inland Empire, No. 1 Pre-Cambrian, T.D. 4916'

Spacing Regulations:

9 wells per 40-acre tract, only 3 wells on any side of tract set back at least 220' from line. Field delineated by Orders No. 8-54 and 28-55.

Special Field Rules:

State-wide rules, except Rules No. 207, 211, 219, 221, 223 and 224 do not apply.

No. Producing Wells: 672

Type of Trap: Stratigraphic

Productive Formations: Madison (Mississippian); Sawtooth (Jurassic); Sunburst (Cretaceous).

Probable Drive Mechanism: Depletion drive.

Secondary Recovery: Several waterfloods are now in operation, and results are inconclusive. Additional data concerning these operations appears earlier in the report.

LAKE BASIN—NORTH

County: Stillwater

Discovery Well:

Name: Holland-American, Castle No. 1
Location: NW SE Sec. 22, T. 2N., R. 21E.
Date Completed: January 11, 1958
Total Depth: 4179'
Initial Potential: 480 MCFGPD, Eagle; 4500 MCFGPD, Frontier

Deepest Well: Superior, Copulos 71-22. Pre-Cambrian, T.D. 7929'

Spacing Regulations:

Frontier and Eagle Reservoirs: Each gas spacing unit will consist of one governmental section containing approximately 640 acres; well locations in center of NW¼ of SE¼ of each section; 75' topographic tolerance. (Order No. 6-58).

Special Field Rules:

Frontier and Eagle may be dually completed without provisions of Rule 219.

No. Producing Wells: 4

Type of Trap: Structural

Productive Formations: Eagle (Cretaceous); Frontier (Cretaceous)

Probable Drive Mechanism: Unknown

LAUREL

County: Yellowstone

Discovery Well:

Name: King Oil Company, Van Winkle 1
Location: NE SE Sec. 24, T. 2S., R. 24E.
Date Completed: July 7, 1961
Total Depth: 1000'
Initial Potential: 45 BOPD.

Deepest Well: Pan American Syn., SW SW NE Sec. 23, T. 2S., R. 24E. T.D. 2365'

Spacing Regulations:

10-acre spacing with 75' tolerance for topographic conditions. Field is delineated by Order No. 15-62.

No. Producing Wells: Shut-in

Type of Trap: Structural and stratigraphic

Productive Formation: Dakota (Cretaceous)

Probable Drive Mechanism: Depletion drive

LITTLE BEAVER

County: Fallon

Discovery Well:

Name: Shell, Unit No. 23-13

Location: NE SW Sec. 13, T. 4N., R. 61E.

Date Completed: July 30, 1952

Total Depth: 8553'

Initial Potential: 313 BOPD, 33 BWPD

Deepest Well: Carter, NP No. 1, Sec. 19, T. 4N., R. 62E.
Pre-Cambrian. T. D. 9673'

Spacing Regulations:

State-wide except that Rule 203 of General Rules and Regulations is waived for unitized portion of field. (Order No. 41-62).

Special Field Rules:

Rules No. 213, 218, and 219 of General Rules and Regulations are waived and suspended for unitized portion of field. (Order No. 41-62).

No. Producing Wells: 25

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Combination depletion and water drive.

Secondary Recovery: Waterflood of the Red River formation was approved by Order No. 3-66.

LITTLE BEAVER—EAST

County: Fallon

Discovery Well:

Name: Montana-Dakota Utilities, NP No. 1

Location: Sec. 17, T. 4N., R. 62E.

Date Completed: October, 1952

Total Depth: 8186'

Initial Potential: 25 BOPD

Deepest Well: Shell, No. 14-34, Sec. 34, T. 5N., R. 61E.
Red River (Ordovician). T.D. 8471'

Spacing Regulations:

State-wide except that Rule 203 of General Rules and Regulations is waived for unitized portion of field. (Order No. 42-62).

Special Field Rules:

Rules No. 213, 218 and 219 of General Rules and Regulations are waived and suspended for unitized portion of field. (Order No. 42-62).

No. Producing Wells: 18

Type of Trap: Structural

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Combination depletion and water drive.

Secondary Recovery: Waterflood of the Red River formation was approved by Order No. 33-64.

Water Disposal: Produced water is injected into the Mission Canyon formation.

LODGE GRASS

County: Big Horn

Discovery Well:

Name: Amerada Petr. Corp., Yellowknife 1

Location: SE NW Sec. 6, T. 6S., R. 36E.

Date Completed: April 20, 1964

Total Depth: 6521'

Initial Potential: 165 BOPD

Deepest Well: Continental, Crow 16-1, C SW SE Sec. 16,
T. 6S., R. 36E. T.D. 6643'. Tensleep (Pennsylvanian)

Spacing Regulations:

Tensleep Reservoir (Oil): 160-acre spacing units; well locations vary according to areas; 250' topographic tolerance. (Order Nos. 26-64, 26-65).

Special Field Rules:

Annual bottom-hole pressure surveys in May. (Order No. 26-65).

No. Producing Wells: 2

Type of Trap: Probably structural.

Productive Formation: Tensleep (Pennsylvanian)

Probable Drive Mechanism: Water drive

LONE TREE

County: Sheridan

Discovery Well:

Name: Sun, Hellegaard 1

Location: SE NE Sec. 8, T. 37N., R. 57E.

Date Completed: January, 1963

Total Depth: 10,438'

Initial Potential: 238 BOPD.

Deepest Well: Above well.

Spacing Regulations:

(Ratcliffe & Nisku). 160-acre spacing, permitted well in center of SE¼ of spacing unit with a 200' topographic tolerance. Field delineated by Orders No. 11-63 and 43-65.

Special Field Rules:

Annual bottom-hole pressure surveys to be made in October of each year.

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Madison (Mississippian), Nisku (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: The disposal of produced salt water by injection into the Dakota sandstone was initiated May 2, 1964. (Order No. 11-64).

LOOKOUT BUTTE

County: Fallon

Discovery Well:

Name: Continental Oil, NP A-29, No. 2

Location: SE SW Sec. 29, T. 7N., R. 60E.

Date Completed: December 26, 1961

Total Depth: 8851'

Initial Potential: 495 BOPD, 11 BWPD, 22/64" ck.

Spacing Regulations:

(Siluro - Ordovician). 160 - acre spacing, permitted well to be in SE¼ of each spacing unit, 150' topographic tolerance, delineated by Order No. 21-62. Coral Creek Unit portion of field not subject to spacing. Field re-delineated by Order No. 7-63.

No. Producing Wells: 71

Type of Trap: Structural

Productive Formations: Silurian, Ordovician

Probable Drive Mechanism: Combination depletion drive with partial water drive.

Water Disposal: Produced water is injected into the Madison formation. (Order No. 68-62).

MASON LAKE

County: Musselshell

Discovery Well:

Name: Occidental, Govt. Hall 1

Location: Center Lot 5, Sec. 2, T. 8N., R. 24E.

Date Completed: July 31, 1964

Total Depth: 7915'

Initial Potential: 17 BOPD flowing

Deepest Well: Same as above. Meagher Formation (Cambrian).

Spacing Regulations:
State-wide.

No. Producing Wells: 2

Type of Trap: Probably structural

Productive Formations: Lakota (Cretaceous)

Probable Drive Mechanism: Water drive

MELSTONE

County: Musselshell

Discovery Well:

Name: Amerada, Hungen No. 1

Location: SE SE Sec. 23, T. 10N., R. 29E.

Date Completed: October 18, 1948

Total Depth: 4228'

Initial Potential: 655 BOPD, 3/4" ck.

Deepest Well: Amerada, Hungen No. 2, Sec. 23, T. 10N., R. 29E. Cambrian. T.D. 7626'

Spacing Regulations:
State-wide.

No. Producing Wells: 5

Type of Trap: Structural and stratigraphic

Productive Formations: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

Water Disposal: Produced water was injected into the Tyler "B" zone from February, 1954 to May, 1958. A total of 1,056,000 barrels were injected before the injection well plugged. Water now flows into pits and is used for stock water by landowners.

MIDDLE BUTTE

County: Toole and Liberty

Discovery Well:

Name: Cardinal Petr. Co., No. 1 Turan-Morris

Location: NE SW Sec. 13, T. 36N., R. 3E.

Date Completed: October 17, 1959

Total Depth: 2817'

Initial Potential: 1200 MCFGPD.

Deepest Well: Above well. Madison

Spacing Regulations:
(Bow Island Gas) 320-acre spacing units consisting of E½ and W½ of each governmental section; well location in approximate center of either of the inside quarter-quarter sections located in E½ of each spacing unit; 75' topographic tolerance. (Order No. 3-60).

No. Producing Wells: 4

Type of Trap: Structural

Productive Formation: Blackleaf (Cretaceous)

Probable Drive Mechanism: Volumetric

MINERAL BENCH

County: Roosevelt

Discovery Well:

Name: Tenneco Oil Co., No. 1 Nesbit
Location: NW NE NE Section 4, T. 31N., R. 51E.
Date Completed: January 21, 1965
Total Depth: 9676'
Initial Potential: Duperow Formation: 214 BOPD.
Charles "C" Zone: 237 BOPD.

Deepest Well: Above well. Interlake (Silurian)

Spacing Regulations: State-wide (Order No. 13-66)

No. Producing Wells: 1

Type of Trap: Structural

Productive Formations: Charles "C" Zone (Mississippian). Duperow (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water is injected into the Dakota-Lakota formations of Cretaceous age. (Order No. 18-65).

MONARCH

County: Fallon

Discovery Well:

Name: Shell, NP 12-23
Location: Sec. 23, T. 9N., R. 58E.
Date Completed: November 18, 1958
Total Depth: 9175'
Initial Potential: 218 BOPD, 13 BWPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations:

Madison Reservoir: 80-acre spacing units consisting of the east and west half of each quarter section, permitted wells to be in the SW $\frac{1}{4}$ and NE $\frac{1}{4}$ of each quarter section, surface location anywhere within spacing unit but location of bottom of hole must be within a 660' square at center of the quarter-quarter section. (Order No. 18-61).

Siluro-Ordovician Reservoir: 160-acre spacing units consisting of each governmental quarter section, permitted wells to be in SW $\frac{1}{4}$ of each quarter section, 175' topographic tolerance. (Order No. 12-59. Re-delineated by Order No. 4-63).

No. Producing Wells: (Siluro-Ordovician 14) (Madison 2)

Type of Trap: Structural and stratigraphic

Productive Formations: Red River (Ordovician); Interlake (Silurian); Mission Canyon (Mississippian).

Probable Drive Mechanism: Depletion drive with partial water drive

Water Disposal: Produced water is disposed into the salt water disposal system for the Pennel Field. (Madison formation).

MOSSER

County: Yellowstone

Discovery Well:

Name: Tarrant, Mosser No. 2
Location: SW SW NE Sec. 26, T. 3S., R. 24E.
Date Completed: January 25, 1937
Total Depth: 1027'
Initial Potential: 60 BOPD.

Deepest Well: Tarrant, Mosser No. 1, Sec. 26, T. 3S., R. 24E. Madison (Mississippian). T.D. 2568'

Spacing Regulations:

Spacing waived. Future development requires administrative approval of the Commission. (Order No. 27-62).

No. Producing Wells: 9

Type of Trap: Structural

Productive Formations: Dakota (Lower Cretaceous)

Probable Drive Mechanism: Water drive

MT. LILLY

County: Liberty

Discovery Well:

Name: Cardinal Petroleum, Schafer 1
Location: NE NW Sec. 20, T. 37N., R. 5E.
Date Completed: September 11, 1963
Total Depth: 3085'
Initial Potential: 6,200 MCFGPD
Deepest Well: Above well. Madison (Mississippian)

Spacing Regulations:

(Madison Reservoir). Gas: 640-acre, well location in approximate center of any of the four quarter-quarter sections adjoining center of section, 250' topographic tolerance. (Order No. 37-63).

No. Producing Wells: 2

Type of Trap: Structural

Productive Formation: Madison (Mississippian)

MUD CREEK

County: Wheatland

Discovery Well:

Name: Texaco, Griffith 1

Location: NE NW Sec. 12, T. 6N., R. 17E.

Date Completed: March 7, 1963

Total Depth: 4970'

Initial Potential: 1,370 MCFGPD

Deepest Well: Above well. Big Horn (Ordovician)

Spacing Regulations:

(Amsden Reservoir). 640-acre (gas); wells located anywhere within a 160-acre tract in center of each section. (Order No. 9-63).

Special Field Rules:

Annual bottom-hole pressure surveys in October

No. Producing Wells: 1 (Shut-in)

Type of Trap: Unknown

Productive Formation: Amsden (Pennsylvanian)

MUSSELSHELL

County: Rosebud

Discovery Well:

Name: Sumatra Oil Corp., DeJaegher 2

Location: SE NE Sec. 22, T. 11N., R. 31E.

Date Completed: July, 1962

Total Depth: 4420'

Initial Potential: 342 BOPD, 0.2% BS&W

Spacing Regulations:

State-wide.

No. Producing Wells: 0 (Field Abandoned)

Type of Trap: Structural and Stratigraphic

Productive Formations: Tyler (Pennsylvanian)

Probable Drive Mechanism: Depletion drive

OUTLOOK

County: Sheridan

Discovery Well:

Name: Amerada, Tange No. 1

Location: Sec. 20, T. 36N., R. 53E.

Date Completed: December 22, 1956

Total Depth: 9950'

Initial Potential: 2742 BOPD

Deepest Well: Amerada, A. Johnson No. 1, Sec. 33, T. 36N., R. 53E. Pre-Cambrian. T.D. 11,074'.

Spacing Regulations:

Winnipegosis & Interlake Reservoirs: 160-acre spacing units; well location in center of either SW¼ or NE¼ of each quarter section; 175' topographic tolerance. (Order No. 19-59A).

Duperow Reservoir: State-wide spacing.

No. Producing Wells: (10—Interlake & Winnipegosis) (2—Duperow)

Type of Trap: Stratigraphic and structural

Productive Formations: Winnipegosis (Devonian), Interlake (Silurian), Duperow (Devonian).

Probable Drive Mechanism: Water drive

Water Disposal: Produced water disposal began January 12, 1960 into the Dakota formation.

OUTLOOK—SOUTH

County: Sheridan

Discovery Well:

Name: Amerada, Loucks 1

Location: NE SW Sec. 35, T. 36N., R. 52E.

Date Completed: April, 1957

Total Depth: 10,842'

Initial Potential: 312 BOPD (Red River)

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

Red River & Interlake-Winnipegosis: 160-acre spacing; permitted wells can be in either SW¼ or NE¼ of each quarter section, 175' topographic tolerance. (Order No. 19-59A).

No. Producing Wells: (1—Red River) (1—Interlake-Winnipegosis)

Type of Trap: Structural

Productive Formations: Red River (Ordovician), Interlake (Silurian), Winnipegosis (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water injected into the Dakota formation. (Order No. 19-59).

PENNEL

County: Fallon

Discovery Well:

Name: Shell, State No. 22X-36

Location: SE NW Sec. 36, T. 8N., R. 59E.

Date Completed: September 8, 1955

Total Depth: 9242'

Initial Potential: 205 BOPD, 39 BWPD

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

Madison Reservoir: 80-acre spacing units consisting of the east and west half of each governmental quarter section, wells to be located in the center of SE $\frac{1}{4}$ and NW $\frac{1}{4}$ of each quarter section. 150' topographic tolerance. (Order No. 15-61).

Siluro-Ordovician Reservoir: 80-acre spacing units on west side and 160-acre spacing units on east side of pool, wells to be located in the SE $\frac{1}{4}$ and NW $\frac{1}{4}$ of each governmental quarter section (80 acres) and in the SE $\frac{1}{4}$ of each governmental quarter section on 160-acre spacing. 80-acre spacing units to consist of the E $\frac{1}{2}$ and W $\frac{1}{2}$ of each governmental quarter section or lots corresponding thereto. (Orders No. 1-56, 8-56, 15-61, 20-62, 4-63, 7-63).

Special Field Rules:

Commingling of production from the Madison and Siluro-Ordovician pools permitted by Order No. 59-62.

No. Producing Wells: 118 (110—Siluro-Ordovician) (8 Madison)

Type of Trap: Structural

Productive Formations: Lodgepole (Mississippian); Mission Canyon (Mississippian); Siluro-Ordovician.

Probable Drive Mechanism: Combination depletion drive and water drive

Water Disposal: Produced salt water is being injected into Siluro-Ordovician, Dakota and Madison reservoirs. (Orders No. 16-60, 46-62, 68-62, 36-63, 13-64).

PINE

County: Fallon, Wibaux, Prairie and Dawson

Discovery Well:

Name: Shell, Pine Unit No. 32-30

Location: SW SW NE Sec. 30, T. 12N., R. 57E.

Date Completed: January 28, 1952

Total Depth: 9746'

Initial Potential: 467 BOPD, 148 BWPD

Deepest Well: Shell, 43-22A, Sec. 22, T. 11N., R. 57E. Pre-Cambrian. T. D. 10,414'

Spacing Regulations:

Spacing within the Pine Unit is waived by Order No. 37-62. 80-acre spacing units outside of unit area; well location in NW $\frac{1}{4}$ and SE $\frac{1}{4}$ of the quarter section; 150' topographic tolerance. (Order No. 37-62).

Special Field Rules:

Rules No. 203, 213, 218, and 219 of the General Rules and Regulations are waived and suspended for unitized portion of field. (Order No. 37-62)

No. Producing Wells: 155

Type of Trap: Structural

Productive Formation: Siluro-Ordovician

Probable Drive Mechanism: Combination depletion and water drive

Secondary Recovery: A pressure maintenance program was initiated March 10, 1959 by injecting water into the producing horizon. Additional data and details appear earlier in this report. (Order Nos. 13-58, 1-60, 8-62A).

Water Disposal: Most of the produced water is injected back into the producing formation for pressure maintenance. A limited amount is injected into the Dakota formation. (Order No. 7-58).

PLEVNA

County: Fallon

Discovery Well:

Name: F. H. Becker No. 1

Location: NE NE SE Sec. 28, T. 5N., R. 60E.

Date Completed: January 18, 1946

Total Depth: 1053'

Initial Potential: 300 MCFGPD

Deepest Well: True Oil, NP-Plevna 1, NE SW Sec. 29, T. 5N., R. 60E., Red River, T.D. 8940'

Spacing Regulations:

Judith River and Eagle: 1200' from legal subdivision line; 2400' from every other drilling or producible well on the same lease or unit; 75' topographic tolerance. (Order Nos. 34-54 and 4-57).

No. Producing Wells: 32

Type of Trap: Structural

Productive Formations: Judith River (Upper Cretaceous), Eagle (Upper Cretaceous)

Probable Drive Mechanism: Water drive

POLE CREEK

County: Musselshell

Discovery Well:

Name: Occidental, Govt.-Kranzler 1

Location: NE NW Sec. 21, T. 9N., R. 23E.

Date Completed: March 11, 1964

Total Depth: 3662'

Initial Potential: 45 BOPD

Deepest Well: Occidental, NPRR 2, SE SE Sec. 17, T. 9N., R. 23E. T.D. 7482' (Pre-Cambrian).

Spacing Regulations:

State-wide.

No. Producing Wells: 6

Type of Trap: Structural

Productive Formation: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water is fresh and used by landowner for watering stock.

PONDERA

County: Teton

Discovery Well:

Name: Midwest Refining, Haber No. 1
Location: SE SE Sec. 17, T. 27N., R. 4W.
Date Completed: June, 1927
Total Depth: 2072'
Initial Potential: 3 BOPD, 3500 MCFGPD

Deepest Well: Wasatch Oil, Hirshberg No. 1, Sec. 23, T. 27N., R. 4W. Pre-Cambrian. T.D. 5233'

Spacing Regulations:

Ellis-Madison or Sawtooth Reservoirs: Oil Wells: 220' from boundary of any legal subdivision line; 430' from every other drilling or producible well producing from the same reservoir on the same lease or unit; 75' topographic tolerance. Porter Bench Extension: 330' from boundary of any legal subdivision line; 650' from every other drilling or producible well producing from the same reservoir on the same lease or unit; 75' topographic tolerance. (Order No. 9-54).
Gas Wells: 1320' from boundary of any legal subdivision line; 3700' from every other drilling or producible well on the same lease or unit; 75' topographic tolerance. (Order No. 9-54).

Special Field Rules:

State-wide rules, except Rules No. 207, 211, 219, 221, 223 and 224 do not apply.

No. Producing Wells: 375

Type of Trap: Structural and stratigraphic

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Combination depletion drive with limited water drive

Secondary Recovery: Commission has granted one operator approval to initiate a one injection well pilot waterflood. More details appear earlier in this report.

Water Disposal: Produced water injected into lower Madison formation. (Order Nos. 11-56, 15-56, 4-65, 4-66).

PONDERA COULEE

County: Teton & Pondera

Discovery Well:

Name: Perl Smith, Louttit-Mills 1
Location: SE NE Sec. 4, T. 27N., R. 5W.
Date Completed: December 21, 1961
Total Depth: 2452'
Initial Potential: 30 BOPD.

Spacing Regulations:

330' from legal subdivision lines or upon a 10-acre spacing pattern; 75' topographic tolerance in any direction. (Order No. 5-62).

No. Producing Wells: 4

Type of Trap: Structural

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Water drive

POPLAR—EAST

County: Roosevelt

Discovery Well:

Name: Murphy Corp., No. 1 East Poplar Unit
Location: SW NE Sec. 2, T. 28N., R. 51E.
Date Completed: March 10, 1952
Total Depth: 9162'
Initial Potential: 233 BOPD

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

State-wide spacing; field delineated by Order No. 7-55.

Special Field Rules:

Well completion practices as indicated by Order No. 7-55.

No. Producing Wells: 84

Type of Trap: Structural

Productive Formations: Charles-Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

Secondary Recovery: Partial pressure maintenance by water injection was started in September, 1956 and discontinued in February, 1965. (Order Nos. 34-55, 11-59, 5-60).

Water Disposal: Excess produced water has been injected into the Dakota and Judith River formations since September, 1957. (Order Nos. 1-55, 5-57, 7-57, 14-61, 21-61, 34-61, 10-62).

POPULAR—NORTHWEST

County: Roosevelt

Discovery Well:

Name: Ajax Oil, McGowan No. 1
Location: SE SW Sec. 10, T. 29N., R. 50E.
Date Completed: May 12, 1952
Total Depth: 6274'
Initial Potential: 75 BOPD, 25 BWPD

Deepest Well: Humble, Harry Mason No. 1. Interlake (Silurian). T.D. 8392'

Spacing Regulations:

80 acre spacing units consisting of E/2 and W/2 of each governmental quarter section, permitted wells in NW/4 and SE/4 of each quarter section, 75' topographic tolerance. (Order No. 18-55)

Special Field Rules:

Order No. 18-55 lists special well completion practices to be followed.

No. Producing Wells: 5

Type of Trap: Structural

Productive Formations: Charles-Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

PRAIRIE ELK

County: McCone

Discovery Well:

Name: States Oil Co. No. 1 Government.
Location: NE SE Section 34, T24N, R46E
Date Completed: August 27, 1965
Total Depth: 8,961'
Initial Potential: 132 BOPD, 245 BWPD

Deepest Well: Above well, Red River (Ordovician)

Spacing Regulations:
State-wide.

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formation: Charles "C" Zone (Mississippian)

Probable Drive Mechanism: Water-drive

RANCH CREEK

County: Powder River

Discovery Well:

Name: Baumgartner Oil Company No. 1 U. S. A.—Powell
Location: SE NW Section 15, T9S, R53E
Date Completed: September 10, 1965
Total Depth: 5000'
Initial Potential: 118 BOPD

Deepest Well: Above well, Morrison (Jurassic)

Spacing Regulations: State-wide

No. Producing Wells: 3

Type of Trap: Unknown

Productive Formations: Muddy Sandstone (Lower Cretaceous)

Probable Drive Mechanism: Unknown

RAGGED POINT

County: Musselshell

Discovery Well:

Name: Texaco, Manion No. 1
Location: SE SW Sec. 5, T. 11N., R. 30E.
Date Completed: January 4, 1948
Total Depth: 6312'
Initial Potential: 236 BOPD, 5% water

Deepest Well: Above well, Cambrian

Spacing Regulations:

Tyler Formation: 40 acre spacing units consisting of governmental quarter-quarter sections or lot corresponding thereto, 75' topographic tolerance, (Order 8-59). Spacing waived for the Tyler "A" Sand reservoir within Tyler "A" Sand Unit except that no well may be drilled closer than 660' to the unit boundary (Order No. 35-65).

Kibbey Formation: State-wide spacing, 330' from legal subdivision line and 1320' between wells, 75' topographic tolerance. (Order No. 15-54).

Special Field Rules: Commingling of production from the Tyler and Kibbey reservoir permitted in the Texaco Inc. No. 1 Cotter well in NE NW NE Sec. 8, T. 11N., R. 30E. (Order No. 11-65).

Productive Formations: Kibbey (Mississippian) and Tyler (Pennsylvanian).

Secondary Recovery: Order No. 35-65 approved a water flood of the Tyler "A" Sand reservoir. Water injections had not begun as of January 1, 1966.

Water Disposal: Administrative Order No. 19-65 authorized disposal of produced water into the Kibbey formation.

RAPELJE

County: Stillwater

Discovery Well:

Name: Shoreline Petroleum, C. F. Kirchner No. 1
Location: NE SW Sec. 4, T. 2N., R. 20E.
Date Completed: November 18, 1960
Total Depth: 4064'
Initial Potential: 840 MCFGPD

Deepest Well: Above well, Morrison (Jurassic)

Spacing Regulations: State-wide

No. Producing Wells: 1 (Shut-in)

Type of Trap: Unknown

Productive Formations: Eagle (Cretaceous)

Probable Drive Mechanism: Unknown

REAGAN

County: Glacier

Discovery Well:

Name: Reagan Associates, Tribal 194-1
Location: SE NE Sec. 22, T. 37N., R. 7W.
Date Completed: March 29, 1941
Total Depth: 3869'
Initial Potential: 6000 MCFGPD

Deepest Well: Union Oil, Blackfeet Tribal 194-12. Cambrian. T.D. 6258'

Spacing Regulations: State-wide

No. Producing Wells: 51

Type of Trap: Structural

Productive Formations: Madison (Mississippian)

Probable Drive Mechanism: Combination gas cap and water drive

Secondary Recovery: A pressure maintenance project utilizing crestal gas injection was initiated during August, 1961. Additional details appear earlier in this report. (Order No. 21-60)

RED CREEK

County: Glacier

Discovery Well:

Name: G. S. Frary, Isabel Moberly No. 1
Location: SW SW Sec. 1, T. 37N., R. 5W.
Date Completed: January 16, 1958
Total Depth: 2656'
Initial Potential: 1500 MCFGPD

Deepest Well: Pardee-Inland Empire, McAlpine No. 1, Madison (Mississippian). T.D. 2990'

Spacing Regulations:

Madison, Sunburst and Cut Bank Reservoirs: 40 acre spacing units; well location in approximate center of each spacing unit; 75' topographic tolerance; spacing waived for unitized portion of Cut Bank sand reservoir. (Order No. 16-58, 73-62, 31-64)

Special Field Rules:

State-wide rules. Rule 219 waived.

No. Producing Wells: 22

Type of Trap: Structural and stratigraphic

Productive Formations: Cut Bank (Lower Cretaceous), Madison (Mississippian)

Probable Drive Mechanism: Solution gas drive in Cut Bank, water drive in Madison.

Water Disposal: Produced water injected into the Bow Island and Madison formations. (Order Nos. 22-63 and 37-64.)

Secondary Recovery: Waterflood operations in the Cut Bank sand reservoir approved by Order No. 31-64. Injection started in June, 1965.

RED STONE

County: Sheridan

Discovery Well:

Name: H. L. Hunt, Hagen No. 1
Location: NE NW Sec. 7, T. 34N., R. 52E.
Date Completed: November 1, 1958
Total Depth: 10,700'
Initial Potential: 100 BOPD

Deepest Well: Above well. Cambrian

Spacing Regulations: State-wide

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formations: Winnipegosis (Devonian)

Probable Drive Mechanism: Water drive

REPEAT

County: Carter

Discovery Well:

Name: Ohio Oil, Govt. No. 1
Location: Lot 4, Sec. 4, T. 1S., R. 62E.
Date Completed: March 27, 1956
Total Depth: 9362'
Initial Potential: 186 BOPD, 2% water

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations: State-wide

No. Producing Wells: 1

Type of Trap: Unknown

Productive Formations: Red River (Ordovician)

Probable Drive Mechanism: Water drive

RICHEY

County: Dawson and McCone

Discovery Well:

Name: Shell, NP No. 11-19

Location: SE NW NW Sec. 19, T. 23N., R. 50E.

Date Completed: November 29, 1951

Total Depth: 10,518'

Initial Potential: 1656 BOPD, 408 BWPD, 32/64" ck.

Deepest Well: Above well. Cambrian

Spacing Regulations: Charles Reservoir

80 acre spacing units consisting of any two adjacent quarter - quarter sections in the governmental survey; well locations in center of NW/4 and SE/4 of each quarter section; 75' tolerance for topographic or hazardous reasons. (Order No. 21-55).

No. Producing Wells: 10

Type of Trap: Structural

Productive Formations: Charles (Mississippian)

Probable Drive Mechanism: Water drive

Water Disposal: Part of the produced water is being injected into the Dakota formation. (Order No. 10-58 and 19-61)

RICHEY—SOUTHWEST

County: McCone

Discovery Well:

Name: Shell, NP No. 22-25B

Location: SE NW Sec. 25, T. 22N., R. 48E.

Date Completed: 1952

Total Depth: 10,188'

Initial Potential: 51 BOPD

Deepest Well: Above well. Winnipeg (Ordovician)

Spacing Regulations:

Devonian—Silurian—Ordovician Reservoirs: 160 acre spacing units; wells to be located no closer than 900' from boundary of spacing unit. (Order No. 25-62)

No. Producing Wells: 7

Type of Trap: Structural

Productive Formations: Interlake (Silurian); Dawson Bay (Devonian)

Probable Drive Mechanism: Depletion drive

Secondary Recovery: A one well pilot flood of the Interlake and Dawson Bay was commenced in December, 1965.

RUDYARD

County: Hill

Discovery Well:

Name: Texaco, Anderson No. 1

Location: SE SW Sec. 27, T. 34N., R. 9E.

Date Completed: December 9, 1955

Total Depth: 3435'

Initial Potential: 3500 MCFGPD

Deepest Well: Texaco, R. E. Blair No. 1, NW SE Sec. 28, T. 34N., R. 9E. Pre-Cambrian. T.D. 6550'

Spacing Regulations: Sawtooth Gas Reservoir

Spacing units to consist of each governmental section containing approximately 640 acres; well locations in the center of the NW/4 of each section; 75' tolerance for surface obstructions or hazards. (Order No. 2-58).

No. Producing Wells: 3 (Shut-in)

Type of Trap: Structural

Productive Formations: Sawtooth (Jurassic)

Probable Drive Mechanism: Volumetric

SAND CREEK

County: Dawson

Discovery Well:

Name: Texaco, Guelff No. 1

Location: SE NE Sec. 4, T. 15N., R. 54E.

Date Completed: March 8, 1959

Total Depth: 9684'

Initial Potential: 408 BOPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations: Interlake and Red River Reservoirs 80 acre spacing units consisting of any two adjacent quarter-quarter sections or lots corresponding thereto, wells to be located in center of NW/4 and SE/4 of each quarter section or lot corresponding thereto, 150' topographic tolerance. (Order No. 16-59)

Special Field Rules: Order No. 49-62 authorized commingling of production from the Interlake and Red River reservoirs.

No. Producing Wells: 5

Type of Trap: Structural

Productive Formations: Interlake (Silurian); Red River (Ordovician)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water is injected into the Swift formation. (Order No. 9-61)

SHOTGUN CREEK

County: Roosevelt

Discovery Well:

Name: Phillips, McCauley 1
Location: NW NW Sec. 35, T. 30N., R. 57E.
Date Completed: March, 1963
Total Depth: 8771'
Initial Potential: 70 BOPD

Deepest Well: Above well, Madison (Mississippian)

Spacing Regulations: State-wide

No. Producing Wells: 1

Type of Trap: Structural

Productive Formation: Madison (Mississippian)

Probable Drive Mechanism: Water drive

SIDNEY—BRORSON

County: Richland

Discovery Well: (Red River)

Name: Sun-Phillips No. 1 C. Dynneson
Location: SW NE Sec. 32, T. 24N., R. 58E.
Date Completed: April 29, 1953
Total Depth: 12,671'
Initial Potential: 766 BOPD

Discovery Well: (Madison)

Name: Sun-Phillips No. 2 Dynneson
Location: SW SW Sec. 29, T. 24N., R. 58E.
Date Completed: June 14, 1954
Total Depth: 9744'
Initial Potential: 184 BOPD

Deepest Well: Sun Oil Co. No. 1 Beagle Land and Livestock SW SW Sec. 17, T. 23N., R. 59E, Winnipeg (Ordovician) at 13,135'

Spacing Regulations:

Madison Reservoir: 320 acres spacing units consisting of one regular half section which may be either the east and west or north and south halves of each section; well location in the NW/4 and SE/4 of each section; tolerance area consists of the center 40-acres in the NW/4 and SE/4 of each section. (Order No. 30-62 and 12-63)

Red River Reservoir: State-wide spacing.

No. Producing Wells: 3

Type of Trap: Structural

Productive Formations: Mission Canyon (Mississippian)

Probable Drive Mechanism: Water drive

SNYDER

County: Big Horn

Discovery Well:

Name: George Greer, Kendrick No. 2
Location: NE NW NW Sec. 6, T. 1S., R. 35E.
Date Completed: October 4, 1952
Total Depth: 4588'
Initial Potential: 150 BOPD

Deepest Well: George Greer, Kendrick No. 3, Sec. 6, T. 1S., R. 35E. Winnipeg (Ordovician). T. D. 6808'

Spacing Regulations: 10 acre spacing units with center 5-spot permitted, 150' topographic tolerance. (Order No. 45-62)

No. Producing Wells: 4

Type of Trap: Structural

Productive Formations: Tensleep (Pennsylvanian)

Probable Drive Mechanism: Water drive

SOAP CREEK

County: Big Horn

Discovery Well:

Name: Western States Oil & Gas Co., Tribal No. 1
Location: Approx. center Sec. 34, T. 6S., R. 32E.
Date Completed: February 11, 1921
Total Depth: 1966'
Initial Potential: 200 BOPD

Deepest Well: Inland Empire, Tribal 52-34, Sec. 34, T. 6S., R. 32E. Pre-Cambrian. T. D. 4470'

Spacing Regulations:

One well for each 10-acre spacing unit from each productive formation; well location in center of each spacing unit or corresponding lot; 100' topographic tolerance in any direction. (Order No. 26-60)

No. Producing Wells: 15

Type of Trap: Structural

Productive Formations: Tensleep, Amsden (Pennsylvanian); Madison (Mississippian)

Probable Drive Mechanism: Water drive

SPRING LAKE

County: Richland

Discovery Well:

Name: McAlester Fuel, NP-Vaira 1-B

Location: NE NE Sec. 35, T. 25N., R. 54E.

Date Completed: January 25, 1963

Total Depth: 11,860'

Initial Potential: 428 BOPD (Nisku); 314 BOPD (Red River)

Deepest Well: McAlester Fuel, NP-Vaira 2-B, NE NW Sec. 35, T. 25N., R. 54E. Deadwood (Cambrian).

Spacing Regulations:

Nisku and Red River Reservoirs: One well per 160-acre spacing unit; well location anywhere within an 840' square in center of each spacing unit; (Order No. 6-63).

Special Field Rules:

Dual Completion Rule 219 waived. Semi-annual bottom-hole pressure surveys and quarterly well tests.

No. Producing Wells: 4 (1 Nisku, 2 Red River, 1 Dual)

Type of Trap: Structural

Productive Formations: Nisku (Devonian); Red River (Ordovician)

Probable Drive Mechanism: Solution Gas

TULE CREEK—EAST

County: Roosevelt

Discovery Well:

Name: Murphy, Bridges 1

Location: SE NE Sec. 15, T. 30N., R. 48E.

Date Completed: October 28, 1964

Total Depth: 7,736'

Initial Potential: 411 BOPD

Deepest Well: Same as above. Duperow (Devonian)

Spacing Regulations: Nisku Reservoir

160 acre spacing units with permitted well anywhere within a 1320' square in the center of each unit. (Order Nos. 40-64, 6-65).

Special Field Rules:

Semi-annual bottom-hole pressure surveys

No. Producing Wells: 2

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

TULE CREEK

County: Roosevelt

Discovery Well:

Name: Murphy, Sletvold No. 1

Location: SE SE Sec. 18, T. 30N., R. 48E.

Date Completed: October 27, 1960

Total Depth: 8478'

Initial Potential: 476 BOPD, 14/64" ck.

Deepest Well: Above well. Dawson Bay (Devonian)

Spacing Regulations: Nisku Reservoir

160 acre spacing units with permitted well anywhere within a 1320' square in the center of each unit. (Order Nos. 26-62, 6-65)

Special Field Rules:

Semi-annual B.H.P. surveys, with minimum of 12 hours shut in.

No. Producing Wells: 7

Type of Trap: Structural

Productive Formations: Nisku (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Produced water injected into the Dakota formation.

TULE CREEK—SOUTH

County: Roosevelt

Discovery Well:

Name: Brinkerhoff, Track 1

Location: SE NW Sec. 36, T. 30N., R. 47E.

Date Completed: June 19, 1964

Total Depth: 7630'

Initial Potential: 84 BOPD

Deepest Well: Above well. Duperow (Devonian)

Spacing Regulations: Nisku Reservoir

160 acre spacing units with permitted well anywhere within a 1320' square in center of each unit. (Order Nos. 34-64, 6-65)

No. Producing Wells: 1

Type of Trap: Structural

Productive Formation: Nisku (Devonian)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 44-64 permits disposal of produced water into the Judith River or Dakota formations.

UTOPIA

County: Liberty

Discovery Well:

Name: Texaco, State M-1094

Location: NW SE SE Sec. 16, T. 33N., R. 4E.

Date Completed: October 5, 1943

Total Depth: 2579'

Initial Potential: 15 BOPD (Field produces gas)

Deepest Well: Texaco, Laas No. 2 Sec. 14, T. 33N., R. 4E.
Cambrian. T. D. 4593'

Spacing Regulations: State-wide

No. Producing Wells: 6

Type of Trap: Structural

Productive Formations: Sawtooth (Jurassic); Madison
(Mississippian)

Probable Drive Mechanism: Unknown

VIDA

County: McCone and Dawson

Discovery Well:

Name: Phillips, Sievers 1

Location: NW NW Sec. 30, T. 24N., R. 50E.

Date Completed: August 28, 1963

Total Depth: 9895'

Initial Potential: 335 BOPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations: (Interlake Formation)

One well per 160-acre spacing unit; permitted location anywhere within an 840' square at center of each spacing unit but no closer than 900' to the boundary of the spacing unit. (Order No. 39-63)

No. Producing Wells: 2

Type of Trap: Structural

Productive Formation: Interlake (Silurian)

Probable Drive Mechanism: Water drive

VOLT

County: Roosevelt

Discovery Well: (Nisku)

Name: Murphy, Courchene 1

Location: SE SW Sec. 4, T. 30N., R. 46E.

Date Completed: July 11, 1964

Total Depth: 7395'

Initial Potential: 145 BOPD

Discovery Well: (Charles)

Name: Murphy Corp. (Placid) No. 1 Trimble

Location: NE NE Sec. 8, T. 30N., R. 46E.

Date Completed: April 21, 1965

Total Depth: 7437'

Initial Potential: 10 BOPD

Deepest Well: Murphy Corp. No. 1 De Marrias, SW/4 Sec. 8, T. 30N., R. 46E, T. D. 7703'. Duperow (Devonian)

Spacing Regulations:

Nisku Formation: 160 acre spacing units with permitted well anywhere within a 1320' square in the center of each unit. (Order No. 27-64, 6-65)

Charles Formation: State-wide spacing

Special Field Rules:

Semi-annual bottom-hole pressure surveys

No. Producing Wells: 6 (5 Nisku, 1 Charles)

Type of Trap: Structural

Productive Formation: Nisku (Devonian), Charles (Mississippian)

Probable Drive Mechanism: Water drive

Water Disposal: Order No. 3-65 permitted disposal of produced water into the Judith River formation. Facilities were completed in March, 1965.

WELDON

County: McCone

Discovery Well:

Name: Sinclair, Federal-McCone 1

Location: NE SW Sec. 22, T. 22N., R. 46E.

Date Completed: October 24, 1964

Total Depth: 6203'

Initial Potential: 1,224 BOPD

Deepest Well: Sinclair, Federal-McCone 2, SW SE Sec. 22, T. 22N., R. 46E. T. D. 9300' Red River (Ordovician)

Spacing Regulations: (Kibbey Formation)

One well per 80-acre spacing unit; each quarter section divided into two separate units running in either a north-south or east-west direction; well location in approximate center of the NE/4 and SW/4 of each quarter section; 200' topographic tolerance; spacing units for N/2 section 27, T. 22N., R. 46E. are defined in Order No. 9-65.

Special Field Rules:

Semi-annual bottom-hole pressure surveys

No. Producing Wells: 15

Type of Trap: Structural

Productive Formation: Kibbey (Mississippian)

Probable Drive Mechanism: Unknown

WHITLASH

County: Toole and Liberty

Discovery Well:

Name: Montana-Canadian Oil, E. Brown No. 1
Location: SE NE NW Sec. 19, T. 37N., R. 4E.
Date Completed: November, 1918
Total Depth: 2730'
Initial Potential: 15,000 MCFGPD

Deepest Well: Union Oil, Mahoney No. 1, Sec. 22, T. 37N., R. 4E. Cambrian. T. D. 4068'

Spacing Regulations:

Gas: 330' from legal subdivision line and 2400' between wells, 75' topographic tolerance.
Oil: 330' from legal subdivision line and 650' between wells; five-spot location at center of 40 acre tract also permitted; 75' topographic tolerance. (Order No. 16-54.)

Special Field Rules:

General Rules Nos. 207, 211, 219, 221, 223, and 224 suspended. (Order No. 16-54).

No. Producing Wells: 27 Gas; 42 Oil

Type of Trap: Combination stratigraphic and structural

Productive Formations: Blackleaf and Kootenai (Cretaceous); Swift (Jurassic)

Probable Drive Mechanism: Volumetric

WHITLASH—WEST

County: Toole

Discovery Well:

Name: Sumatra Oil, Parsell 1
Location: SE SE NE Sec. 15, T. 37N., R. 3E.
Date Completed: August 7, 1962
Total Depth: 2880'
Initial Potential: 32 MMCFGPD

Spacing Regulations:

Gas: 160 acre spacing units consisting of governmental quarter section; well location anywhere within a 660' square in center of each spacing unit. (Order 61-62)
Oil: 330' from legal subdivision line, 650' between wells drilling, producing, or producible from same reservoir on same lease or unit; five-spot location on a 40 acre parcel is permitted. (Order 61-62)

No. Producing Wells: 10 Gas; 5 Oil

Type of Trap: Structural and stratigraphic

Productive Formation: Sunburst (Cretaceous); Swift (Jurassic)

Probable Drive Mechanism: Volumetric

WILLS CREEK—SOUTH

County: Fallon

Discovery Well:

Name: Shell, Norbeck-Govt. 42-2
Location: SE NE Sec. 2, T. 9N., R. 58E.
Date Completed: February 5, 1964
Total Depth: 9200'
Initial Potential: 297 BOPD

Deepest Well: Above well. Red River (Ordovician)

Spacing Regulations: (Siluro-Ordovician)

One well per 160-acre spacing unit; well location in approximate center of SE/4 of each such unit; 175' topographic tolerance. (Order No. 5-64)

Special Field Rules:

Semi-annual bottom-hole pressure surveys, wells to be shut-in 48 hours minimum.

No. Producing Wells: 2

Type of Trap: Structural

Productive Formation: Siluro-Ordovician

WOLF SPRINGS

County: Yellowstone

Discovery Well:

Name: Atlantic, C. S. Horton No. 18-1
Location: SE SW Sec. 18, T. 7N., R. 32E.
Date Completed: July 31, 1955
Total Depth: 8442'
Initial Potential: 370 BOPD

Deepest Well: Above well. Cambrian

Spacing Regulations: (Amsden Pool)

80 acre spacing units oriented in an east-west direction and consisting of the N/2 and S/2 of each quarter section; well locations in center of NW/4 and SE/4 of each quarter section; 75' tolerance for topographic reasons. (Order No. 4-56)

No. Producing Wells: 16

Type of Trap: Structural

Productive Formations: Amsden (Pennsylvanian)

Probable Drive Mechanism: Water drive

WOODROW

County: Dawson

Discovery Well:

Name: Texaco, NP "G" (NCT-8) No. 1
Location: NE NE Sec. 7, T. 16N., R. 54E.
Date Completed: August 25, 1952
Total Depth: 8124'
Initial Potential: 114 BOPD, 20% water

Deepest Well: Texaco, Elpel No. 1, Winnipeg (Ordovician). T. D. 10,370'

Spacing Regulations:

80 acre spacing units consisting of any two adjacent governmental quarter-quarter sections or lots corresponding thereto, well locations in center of NE/4 and SW/4 of each quarter section; 200' tolerance for topographic reasons. (Order No. 47-62)

Special Field Rules: Commingling of production from the various producing formations is allowed by Order No. 47-62.

No. Producing Wells: 6

Type of Trap: Structural

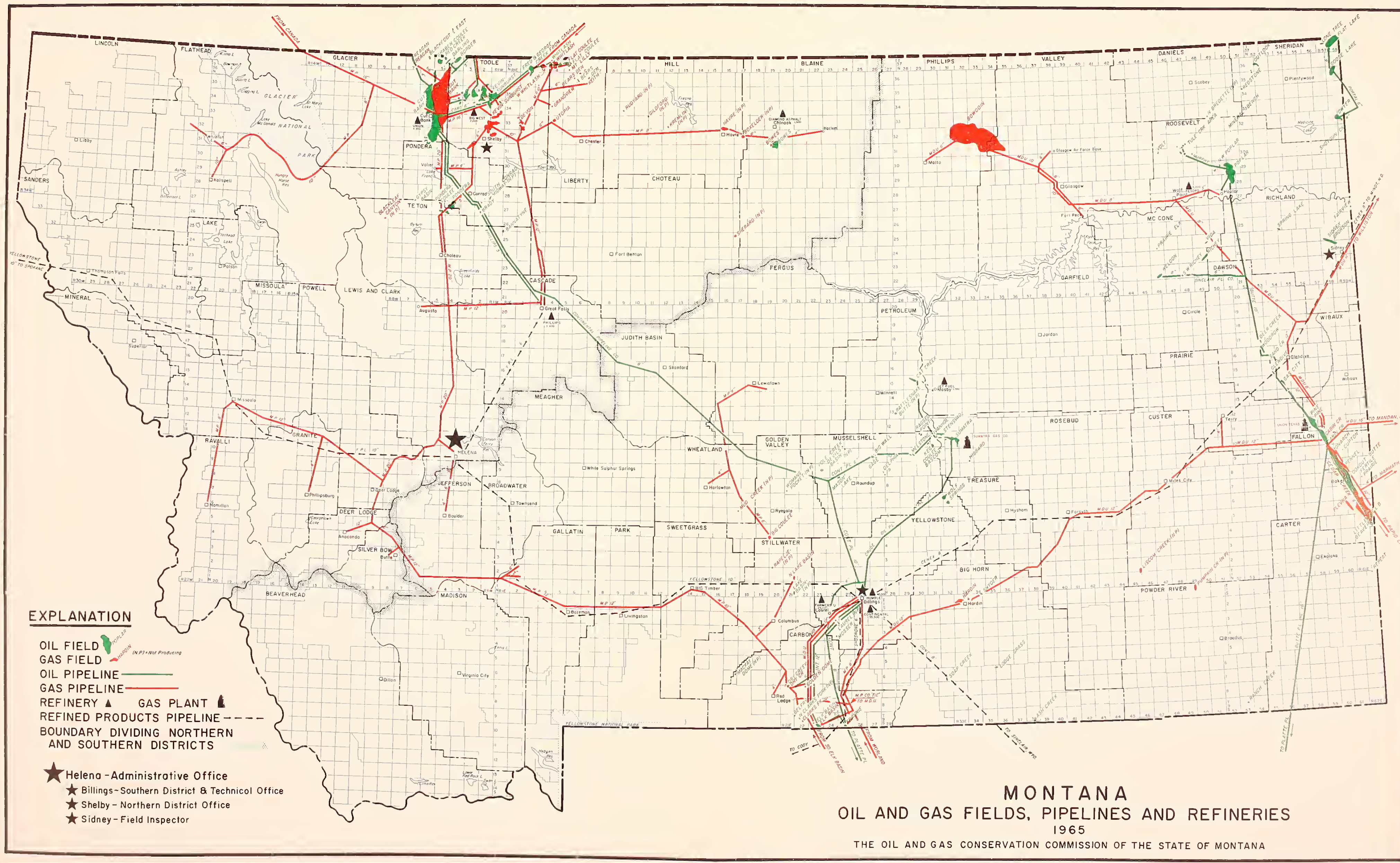
Productive Formations: Charles (Mississippian), Duperow (Devonian), Interlake (Silurian), Red River (Ordovician).

Probable Drive Mechanism: Water drive

Water Disposal: Produced water injected into the Dakota formation. (Order No. 48-62).

STATE OF MONTANA — SUMMARY OF PRODUCING OIL FIELDS

LINE NO.	FIELD (OR POOL)	COUNTY	YEAR DISCOVERED	PRODUCTION FORMATION	APPROX. DEPTH	A.P.I. GRAVITY	VOLUME FACTOR	AVG. NET PAY FT.	AVG. POROSITY %	CONNATE WATER %	ORIGINAL OIL IN PLACE BBL/S-ACRE	PRODUCTIVE AREA 1-1-66 ACRES	ORIGINAL OIL IN PLACE 1000 BBL/S.	ESTIMATED RECOVERY FACTOR %		ORIGINAL RESERVES 1000 BBL/S.	SECONDARY PRIMARY	TOTAL ORIGINAL RESERVES 1000 BBL/S.	CUMULATIVE PRODUCTION 1-1-66 1000 BBL/S.	REMAINING RESERVES 1-1-66 1000 BBL/S.	1965 PRODUCTION		ORIGINAL RECOVERABLE RESERVES		LINE NO.
														PRIMARY	SECONDARY						TOTAL BBL/S.	AVG. DAILY BOPO	BBL/S. / ACRE	BBL/S. / ACRE/FT.	
1	Ash Creek	Big Horn	1952	Shannon (U. Cret.)	4500	34	1.05	14	22	42	13,199	200	2,640	25	31	660	158	818	453	365	37,101	102	4,090	292	1
2	Bannatyne	Teton	1927	Swift (U. Jur.)	1450	27	1.05	39	15	43	24,635	170	4,188	5	--	209	--	209	181	28	9,374	26	1,229	32	2
3	Bears Den	Liberty	1924	Sunburst (L. Cret.)	2300	39	1.08	20	12	35	11,205	200	2,241	17	--	381	--	381	275	106	23,501	64	1,905	95	3
4	Benrud	Roosevelt	1961	Nisku (Dev.)	7650	43	1.41	22	16	30	13,557	80	1,085	16	--	174	--	174	109	65	31,268	86	2,175	99	4
5	Benrud, East	Roosevelt	1962	Nisku (Dev.)	7500	46	1.37	35	15	30	20,811	160	3,330	30	--	999	--	999	520	479	129,877	356	6,244	178	5
6	Benrud, Northeast	Roosevelt	1964	Nisku (Dev.)	7620	46	1.4	45	15.5	30	27,054	160	4,329	30	--	1,299	--	1,299	227	1,072	176,364	483	8,119	180	6
7	Big Wall	Musselshell	1948	Tyler (Penn.)	3000	31	1.02	22	17	40	17,068	1,220	20,821	31	--	6,455	--	6,455	4,721	1,734	176,178	482	5,290	240	7
8	Big Wall	Musselshell	1953	Amsden (Penn.)	2500	19	1.61	17	16	35	8,517	280	2,385	22	--	524	--	524	439	85	27,836	76	1,871	110	8
9	Blackfoot	Glacier	1955	Madison (Miss.)	3550	25	1.15	8	14	40	4,533	480	2,176	27	--	588	--	588	--	262	59,813	164	1,225	153	9
10	Blackfoot	Glacier	1955	Cut Bank (L. Cret.)	3500	30	1.11	15	15	35	10,221	160	1,635	27	--	441	--	1,029	769	--	--	--	2,756	184	10
11	Bowes	Blaine	1949	Sawtooth (H. Jur.)	3250	19	1.02	37	11.7	31	22,718	3,760	85,420	8	10	6,834	1,708	8,542	6,554	1,988	159,708	437	2,272	61	11
12	Brady	Pondera	1942	Sunburst (L. Cret.)	1500	34	1.01	10	12	30	6,452	140	903	8	--	72	--	72	29	43	4,171	11	514	51	12
13	Cabin Creek	Fallon	1953	Siluro-Ordovician	8400	33	1.20	50	13	30	29,415	7,620	224,142	22	30	49,311	17,931	67,242	33,435	33,807	2,516,190	6,894	8,824	176	13
14	Cabin Creek	Fallon	1956	Mission Canyon (Miss.)	7300	33	1.13	25	11	30	13,215	2,259	29,853	35	--	10,449	--	10,449	5,105	5,344	620,090	1,699	4,625	185	14
15	Cat Creek (West Dome)	Petroleum	1920	Kootenai (L. Cret.)	1100	52	1.10	51	21	19	--	975	59,650	25	39	14,913	8,351	23,264	15,412	7,851	124,732	342	23,860	468	15
16	Cat Creek (Antelope-Mosby)	Petroleum, Garfield	1920	Kootenai (L. Cret.)	1225	52	1.10	10	21	19	11,997	200	2,399	22	--	528	--	528	--	700	70,153	192	2,640	264	16
17	Cat Creek	Petroleum, Garfield	1945	Morrison (U. Jur.)	1600	52	1.10	6	22	40	5,586	240	1,340	32	--	428	--	5,985	5,285	--	--	--	1,783	297	17
18	Cat Creek	Petroleum, Garfield	1945	Swift (U. Jur.)	1750	52	1.10	25	18	40	19,050	880	16,764	30	--	5,029	--	5,029	--	--	--	--	5,715	229	18
19	Cut Bank	Glacier, Toole	1932	Kootenai (L. Cret.)	2900	38	1.09	18	15	35	12,492	49,000	612,108	20	31	122,422	67,332	189,754	95,865	93,889	2,138,760	5,860	3,873	215	19
20	Cut Bank	Glacier, Toole	1945	Madison (Miss.)	3000	39	1.10	10	14	30	6,911	3,200	22,115	28	--	6,192	--	6,192	5,348	844	161,868	443	1,935	194	20
21	Cut Bank (Houlton Pool)	Glacier	1964	Houlton (L. Cret.)	2500	39	1.161	25	18	25	22,553	400	9,021	18	38	1,624	1,804	3,428	746	2,682	734,290	2,012	8,570	343	21
22	Deer Creek	Dawson	1952	Red River (U. Ord.)	9900	41	1.2	90	7	30	28,530	240	6,847	15	--	1,027	--	1,027	990	37	5,856	16	4,279	48	22
23	Deer Creek	Dawson	1956	Interlake (Sil.)	9440	43	1.2	38	6.7	30	11,514	320	3,684	36	--	1,326	--	1,326	1,021	305	40,735	112	4,144	109	23
24	Dwyer	Sheridan	1960	Mission Canyon (Miss.)	8000	33	1.12	30	11.8	55	11,034	4,800	52,963	10	--	5,296	--	5,296	3,146	2,150	424,740	1,163	1,103	37	24
25	Elk Basin (Montana Portion)	Carbon	1915	Frontier (U. Cret.)	1200	45	1.16	30	21	20	33,720	120	4,046	--	34	--	1,376	--	1,376	81	3,458	9	11,467	382	25
26	Elk Basin (Montana Portion)	Carbon	1942	Embar-Tensleep (Perm.-Penn.)	5000	29	1.16	124	10.5	10	78,368	1,376	107,834	--	57	--	61,465	61,465	40,962	20,503	2,431,945	6,662	44,669	360	26
27	Elk Basin (Montana Portion)	Carbon	1946	Madison (Miss.)	5300	28	1.12	224	12	9	169,434	920	155,879	24	28	37,411	6,235	43,646	8,882	34,764	645,977	1,770	47,441	212	27
28	Elk Basin (Montana Portion)	Carbon	1963	Jefferson (Dev.)	5400	28	1.18	64	6.5	31	18,867	40	755	20	--	151	--	151	26	125	4,269	12	3,775	59	28
29	Elk Basin, Northwest	Carbon	1947	Frontier (U. Cret.)	3375	47	1.29	28	19	30	22,394	120	2,687	25	43	672	484	1,156	985	171	41,944	115	9,633	344	29
30	Elk Basin, Northwest	Carbon	1947	Madison (Miss.)	6215	35	1.08	124	12	35	69,477	300	20,843	12	--	2,501	--	2,501	823	1,678	13,438	37	8,337	67	30
31	Elk Basin, Northwest	Carbon	1964	Embar-Tensleep (Perm.-Penn.)	6000	37	1.15	27	11.5	22	16,338	580	9,476	20	35	1,895	1,421	3,316	401	2,915	286,129	784	5,717	212	31
32	Fairview	Richland	1965	Red River (U. Ord.)	12660	47	1.70	42	8.9	28	12,281	320	3,930	20	--	786	--	786	62	724	62,396	693	2,456	58	32
33	Fertile Prairie	Fallon	1952	Red River (U. Ord.)	9250	29	1.2	6	14	27	3,964	300	1,189	26	--	309	--	309	225	84	32,436	89	1,630	172	33
34	Flat Coulee	Liberty	1933	Swift (U. Jur.)	2900	37	1.1	18	21	35	17														



EXPLANATION

- OIL FIELD
- GAS FIELD
- OIL PIPELINE
- GAS PIPELINE
- REFINERY
- GAS PLANT
- REFINED PRODUCTS PIPELINE
- BOUNDARY DIVIDING NORTHERN AND SOUTHERN DISTRICTS
- ★ Helena - Administrative Office
- ★ Billings - Southern District & Technical Office
- ★ Shelby - Northern District Office
- ★ Sidney - Field Inspector

MONTANA
OIL AND GAS FIELDS, PIPELINES AND REFINERIES
1965
THE OIL AND GAS CONSERVATION COMMISSION OF THE STATE OF MONTANA



SHOWING PRODUCING HORIZONS — MONTANA OIL AND GAS FIELDS



